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Language Integration in CLIL subjects: Contrastive Analysis of Didactic Materials for 1st and 2nd ESO

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Abstract:

CLIL's main objective is giving learners a holistic educational experience where the foreign language is used not only to teach the language itself, but as a tool to explore, learn, experiment, and comprehend new concepts related to different context or areas of study (Coyle et al 2010:1). This Dissertation carries out a contrastive analysis between the materials of two subjects, Music in 1st ESO and Technology in 2nd ESO, implemented in a hard CLIL programme during the academic year 2017-2018. The aim of this piece of work is to analyse how the second language has been integrated within the content of the subjects, as both subjects have been designed in different ways: the Technology materials were created by the teacher, while the Music materials are based upon a course book. Hard CLIL programmes tend to be content led (Ball et al, 2015), so my concern is to find out whether these materials have not neglected the language learning process while teaching the specific area of study.

Keywords: Content and Language Integrated Learning, Second Language Teaching, contrastive analysis, Secondary Education.

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1. INTRODUCTION

The main objective of Content and Language Integrated Learning is giving learners a holistic educational experience where the foreign language is used not only to teach the language itself, but as a tool to explore, learn, experiment and comprehend new concepts related to different context or areas of study (Coyle et al 2010: 1). Nowadays, CLIL is viewed as a mean towards competence-based education (Meyer et al, 2014) and as provider of a coherent framework for the multilingual skills demanded by post-modern society (Ball, 2016: 16).

The objective of the present Dissertation is to carry out a contrastive analysis of two types of instructional materials used in the hard-CLIL programme in a public Secondary school in Zaragoza. They offer Music and Technology along the secondary education stage. The Music materials are based on a course book while the Technology materials were designed by the teacher. I will be analysing the first Unit from both materials. In a hard CLIL programme, lessons are mainly content led (Ball et al, 2015), but if content becomes the fundamental component of the lessons, there is a risk of neglecting the language learning process, which can lead to, firstly, students not acquiring the subject concepts properly and, secondly, a failure at second language learning, a key aspect in bilingual education. This is why the aim of my analysis is to see how foreign language learning is integrated within the content. To do so, I have designed five questions in order to guide my analysis, which can be found in the Methodology section and are based on the theoretical framework that will be identified and explained below. The focus of the questions is to see whether the foreign language learning has been integrated in harmony with the content.

With the analysis results, I expect to evidence two issues. Firstly, and as the main objective of my study, that language teaching may go to the background of the learning process, as hard CLIL programmes are content led. This should not be this way because 'the existence of content is predicated on language, and the existence of language is predicated on content' Ball (2016: 17), so both dimensions should be given the same importance in the learning process. Secondly, and as a subsidiary objective, evidence the need for content teachers to coordinate with language teachers in order to provide a balanced lesson planning that would not lean towards teaching neither only content, neither only language. This objective was set due to the difference of the teaching materials, since one set of materials was designed by the subject teacher, the Technology materials, and the other set consisted of a course book. Therefore, we expect more balance in both dimensions from the first than the second, as the teacher that designed the materials may have coordinated with the English department in order to reinforce language learning at the same time as content learning.

This Dissertation is divided in four main section: Theoretical framework, Methodology, Analysis and Suggestions for improvement and Conclusions. In the first, I will be stating the importance of competence based learning in the Aragonese curriculum to further relate it with the Communicative Language Teaching and Task-Based Language Teaching approaches, finally, I will argue that the orientations of these approaches are part of CLIL foundations. The similarities between these elements in my Theoretical framework will help me identify the relevant criteria for my analysis, which are described in a numbered list the Methodology. In the Analysis section, I will provide a description of my findings on1 how the language learning is integrated in the content of these two subjects. Firstly, I will be using Ball's et al (2015) five-stage sequencing proposal to detect how relevant the linguistic dimension in the materials is. Then, leading to the next section, suggestions for improvement, if there were to be any gaps in this dimension, I will be combining key elements of CLIL theory and TBLT to modify the materials in order to integrate second language learning principles.

In the following section, the theoretical framework that supports my analysis will be identified and critically discussed.

2. THEORETICAL FRAMEWORK

Many aspects can be analysed in didactic materials for the CLIL classroom. The following theoretical framework will focus on how the language is focused on in CLIL programmes. Firstly, I will introduce the Aragonese competence-based curriculum as it sets the legal framework for the standard teaching system in Spain. The same guidelines the curriculum gives to develop the linguistic competence in the foreign language can be applied to developing second language learning in the bilingual system. After exploring curricular specifications, I will draw on relevant Second Language Teaching principles and concepts, focusing on Communicative Language Teaching (Brown, 2007; Richards, 2006) and Task-Based Language Teaching (Ellis, 2003; Nunan, 2006) in order to specify how or with which tools the curriculum can be unpacked to promote efficient bilingual education. I will briefly describe the connection between the first CLIL model, the 4Cs model, with Ball's (2015) 3-dimensional theory, as the second emerged as a critique to the first. Last, but not least, I will introduce Cummins' (2008) seminal contribution to CLIL with the concepts BICS and CALP.

2.1 The Aragonese competence-based curriculum and Communicative Language Teaching

Due to the appearance of the European Commission *Recommendation 2006/962/EC on key competences for lifelong learning* the education system had to shift from mere content knowledge to competence performance. 'Doing things' rather than just 'knowing things' meant that the Spanish educational system had to adapt to these new approach also in the foreign language teaching. Currently, the Spanish law on Education *Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa* at the beginning of Section V states the importance of educating for a globalized world where knowledge is not the only key element to prepare learners for the social and professional environments; competences must be developed in harmony with knowledge learning. As this law explains:

> 'Una sociedad más abierta, global y participativa demanda nuevos perfiles de ciudadanos y trabajadores, más sofisticados y diversificados, de igual manera que exige maneras alternativas de organización y gestión en las que se primen la colaboración y el trabajo en equipo, así como propuestas capaces de asumir que la verdadera fortaleza está en la mezcla de competencias y conocimientos diversos'.

The idea of merging competences and knowledge can be related to Ball's (2016: 24) idea which states that providing 'a situation –preferably authentic– […] will allow a person to demonstrate (through an action or a series of actions) a given competence' because both knowledge and competence are only observable through performance, and this is key in modern society.

The lifelong learning competences the European Commission recommends are a combination of knowledge, skills and attitudes. There is a total of eight competences, which are Communication in the mother tongue; Communication in foreign languages; Mathematical competence and basic competences in science and technology; Digital competence; Learning to learn; Social and civic competences; Sense of initiative and entrepreneurship; and Cultural awareness and expression. The Aragonese curriculum integrates these competences in *ECD/489/2016, de 26 de mayo*, the only difference is that it combines the first two competences into a single one called 'linguistic competence'.

All this leads us to establish the first key element for the analysis: linguistic competence. Its development in a CLIL classroom is essential because, after all, CLIL has emerged as a response to our multilingual reality. CLIL allows us to develop linguistic competence as it fosters production in L2 and, at the same time, it can create an environment that enriches the understanding of concepts in another language and broadens the conceptual mapping resources

(Coyle et al, 2010: 11). Students can build their knowledge from two linguistic systems which can allow them to have various perspectives of the area of study.

To develop this competence the Communicative Language Teaching (CLT) approach seems to provide the guidelines for successful L2 learning since, according to the Aragonese curriculum (ECD/489/2016), the final goal for the teaching of English as a foreign language is to communicate in different contexts and for different purposes. . The CLT approach was born in the 1980s and it was described as an approach rather than a method. An approach is a theoretical model for an instructional design which gives direction on objectives, teachers' and students' roles and activities, but these can be applied in many ways depending of the learning context; whereas a method is an instructional design where these elements are prescribed and have a specific set of guidelines (Brown, 2007; Kumaravadivelu, 2006). CLT is identified by the following characteristics (Brown, 2007: 4): giving importance to all aspects of language –form and function–, promoting both fluency and accuracy, focusing on real-world contexts, giving learners autonomy in the learning process by giving them the chance to develop their own appropriate strategies for learning and, finally, shifting the teacher's role from that of an instructor into a guide. Setting itself as an approach rather than a method, it became a dynamic and flexible subject for interpretation based on one's observation and experience.

These initial characteristics have been complemented with such contributions as Ellis' (2003) Task-based Language Teaching, whose ideas have been supported by other authors like Kumaravadivelu (2006) or Nunan (2006). Therefore, this will become the second key element for my analysis. Approaching the learning process through a task means, according to (Ellis, 2003: 16), to prepare a workplan where students have to 'process language pragmatically so as to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed'. This is, communicating in the target language in order to solve a specific piece of classroom work: productive or receptive, written or oral. Moreover, learners may use their own linguistic resources for this end, as the primary attention is on meaning. However, this does not mean that a task will never focus on a particular form use. Moreover, Ellis (Ellis, 2003: 16) contends that 'a task is intended to result in language use that bears a resemblance, direct or indirect, to the way language is used in the real world', which means that students should be given a realistic context where to apply the new knowledge and skill learnt in class.

TBLT is seen an evolution of CLT, so many similarities can be found between them. Firstly, the resemblance of language use in class to real-world language processes, which emphasises the idea of using language as a tool to 'do something' and not as an isolated chunk of theory which

students would systematically practise and produce. The engagement of students' learning autonomy in both CLT and TBLT is highlighted, as students have to make use of their own linguistic resources in order to convey the appropriate solution to a task. The focus of both approaches is on meaning; however, TBLT reminds that focus on form is also important because it contributes to acquisition. Finally, I consider that both, TBLT and CLT, try to present the steps that will help assess students linguistic performance (or, in other words, their linguistic competence), while trying to avoid the 'how good their memory is' in terms of learning L2 theory instead of applying it.

2.2 CLIL and Ball's 3-dimensional model

Content and Language Integrated Learning was described as a 'dual-focused' approach in which an additional language is used for the learning and teaching of both content and language (Coyle et al, 2010: 1). Nowadays, due to such contributions as Meyer et al (2014) and Ball et al (2016), CLIL is viewed as a means to implement competence-based education and as a provider of a coherent framework for the multilingual skills demanded by post-modern society.

This approach can offer the students many advantages when it comes to acquiring knowledge and developing skills. Firstly, it can have an impact on conceptualization because, through another language, it enriches the understanding of concepts, at the same time as it broadens the conceptual mapping resources. Secondly, it enables real-life experience, such as problem solving, researching or even innovating. The resemblance to experiences found in the real world can engage cognitive processes, both high and low. If students are cognitively engaged in a real world like context, the learning process becomes meaningful, so students can acquire the language and the new concepts with less effort. Thirdly, as it is oriented to real-life experience, it can provide high levels of authenticity by incorporating the use of real-world material so students could relate their learning to context outside the classroom environment (Coyle et al, 2010: 5-11).

Now we would like to address Coyle's et al (2010) theory of CLIL in order to justify our choice of Ball's et al (2015) for our first stage of the analysis. Coyle et al (2010: 41-42) put forward the 4Cs model for building bilingual programmes. In general terms, those 4Cs stand for *Content* (subject matter), which involves not only acquiring knowledge and skills, but also helping the learners create their own knowledge and understanding, as well as developing their own skills; *Communication* (language learning and using), consisting in interaction in L2 to improve proficiency and concept learning; *Cognition* (learning and thinking processes) to engage thinking and learning processes; and, finally, *Culture* (global understanding and citizenship), related to teaching citizenship values and intracultural and intercultural awareness. The main

challenge in this model is to 'ensure that learners will be cognitively challenged yet linguistically supported to enable new dialogic learning to take place' (Coyle et al, 2010: 43). That is, the challenge lies in the necessity to provide the adequate context which would foster cognitive processes in order to learn the content through meaningful communication in the second language.

For Ball (2016: 17), there is a main problem with the definition of *content* and *language* in Coyle's theory. He explains that the first 'C' –content– can be considered defined as it makes mention the specific elements of a defined curriculum, that is the specific orientations regarding an area of study in the national curriculum. For instance, the Aragonese curriculum, which gives clear orientations about 'what' students should have acquired by the end of an academic course. However, when we move onto the next 'C' –communication–, Ball contends that it could be considered content likewise. As Ball (2016: 17) claims, 'the existence of content is predicated on language, and the existence of language is predicated on content'. That is, we learn how to use the language when learning the content and vice versa, we learn the content by using the language. The main question at this point is why content and language are being 'integrated' in Coyle's theory when language is content from Ball's point of view.

Communication is a skill, and it is necessary to learn how to demonstrate a skill successfully, which means that communication and language –the tool to communicate effectively– are examples of content, as students need to learn how to use them correctly. Furthermore, Ball (2016: 18) continues explaining that the third 'C', cognition, is also content, since in CLIL lessons higher-order thinking skills (Bloom 1956) should be included in order to carry out more significant learning. Similarly, the fourth 'C', culture, can be considered content, whether it be understanding and learning intercultural issues, the culture of the classroom, the cultural possibilities of the topics or simply the intracultural awareness of otherness and self. In short, in Ball's view, Coyle's et al (2015) idea on CLIL seems to offer a vague definition of content, since it can be found in all four Cs, but under different names.

However, Ball's main contribution is regarding the most important 'C', which is missing in the 4Cs theory: Competence. In Ball's view, teachers should use conceptual and linguistic content as vehicles for students to acquire procedural skills; that is, an important element to develop and achieve competences. With this idea in mind, content and language learning can never be considered as aims in themselves, but as tools or means for our students to be competent in a specific or various skills (Ball, 2016: 18-19).

At this point Ball introduces his dimensional view of content consisting in three dimension related to content, language and procedure. These three dimensions, and how they relate throughout a lesson sequence, will be another tool for analysing the teaching materials. Now, let

me briefly explain these three dimensions. Ball (2016: 20) explains his three dimensions in the following way: the conceptual weight of a curriculum is the *what*; the procedural weight is the *how* and the linguistic weight is the tools or the *means* by which we learn the concepts chosen and by which we execute the procedures that relate to them. During CLIL lessons these three dimension interrelate in different ways and with different intensity levels, as I will explain further. This model can fulfil two types of objectives: the outcome objectives – the ones we can test – and those which Ball calls 'priority' objectives. These objectives will depend on CLIL teachers decision of which of the three dimensions they wish to emphasize during a lesson, always having in mind that the last will continue to feed the first (Ball, 2016: 22). For instance, in a fist CLIL lesson the teacher may emphasize language and procedure outcomes while teaching little content, whereas in the following lessons he could do the reverse. No matter which the 'priority' objective is, e.g., the language structures of the first lesson, the remaining dimension are still tackled during the lesson.

Now that we know what the three dimensions stand for, how do they relate to CLT and the linguistic competence? The idea of 'doing things' with language has brought a few breakdowns when it comes to teaching content in L2. The traditional notion of teaching had its advantages, such as good explanation and clear performance from the teachers' role (Ball, 2016: 23). However, when we try to teach subject content in exactly the same way in which we would teach it in the L1, we may realise that the task might be quite impossible to accomplish because student may face two difficulties at the same time. Firstly, the language barrier which can slow down comprehension or even make content incomprehensible; and, secondly, if language becomes an issue, understanding and acquiring a new concept will become an unreachable aim.

This is why, in CLIL lessons, Ball (2016: 23) recommends the teachers to talk less, since they may not be understood. In this way, the centre of the lessons shifts inevitably from teacher to learner. This is the same kind of procedure that one may find in Communicative Language Teaching, which is characterised by learner-centred instruction where the teacher is a guide for students to accomplish a task rather than an instructor who controls the whole lesson. As Ball contends (2016), the less the teacher speaks, the more the students should intervene and interact with each other, what results in communication. Therefore, if students have the chance to communicate, it means they are using language to do a task, which in other words can be also described as developing a specific competence: their linguistic competence.

After providing a brief description of Ball's contribution to CLIL, we would like to finish our current section on CLIL by describing the key element of his theory that will be the starting point of our further analysis, that is, Ball's et al (2015) five stages for sequencing a CLIL lesson,

which will be enumerated and described in the next paragraph. These five stages are closely related to the three dimensions that we have mentioned before. As Ball et al (2015) explain, each stage reflects the steps of the teaching process in a CLIL class. He uses the metaphor of a 'mixing desk' for the three dimensions, as their intensity should vary along the five stages. The following figure summarises the five stages appearance in a sequence, however we will clarify the relation between dimensions afterwards in more detail:

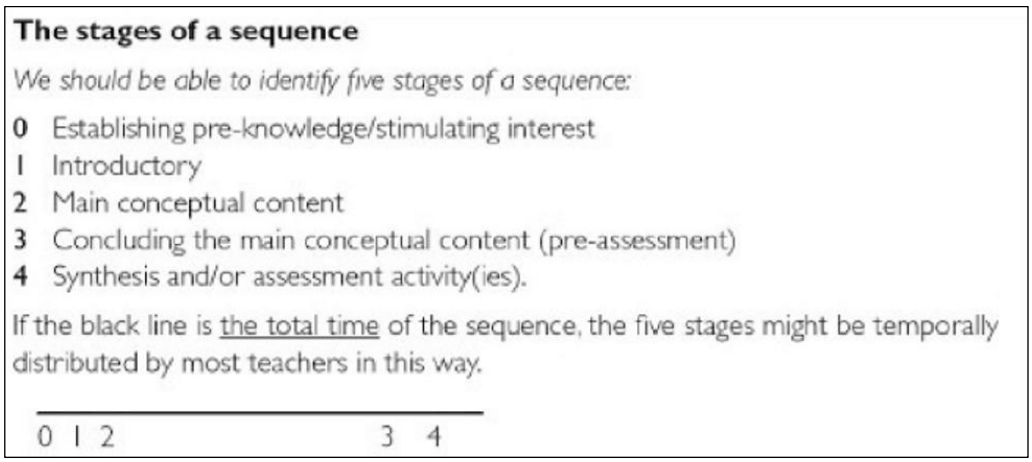

Figure 1. Summary of the five stages of a sequence (Ball et al, 2015).

In stage 0, students face *Activation* of previous knowledge and their interest in the topic should be stimulated. Here the three dimensions can be connected in the following way: the conceptual demand (the *what*) should be low, as it is the beginning of the sequence; the procedural demand (the *how*) can be medium to high, as there should be a lot of interaction in order to activate ~~the~~ previous knowledge; and the linguistic demand (the *tool*) should be also medium to high, as tasks in this stage need to be interactive, fostering communication. In stage 1, *Introduction* to the topic, students should be introduced to the main aspects of the Unit. At these stage, there is still no high cognitive demand, but the conceptual demand starts to increase slightly, whereas the procedural and linguistic demands remain medium. Stage 2, *Complication*, is the longest one, as students are taught main conceptual content in depth. At this stage, the conceptual demand rises to its highest, the procedural demand may stay medium, but the linguistic demand should remain low, so as not to involve too much cognitive effort from the students. This stage is essential in CLIL classes, as it should develop the contents, give the necessary scaffolding to fulfil the tasks and promote communicative skills development. In stage 3, *Synthesis*, as its names indicates, there should be a conclusion of the main conceptual content, so the conceptual demand decreases again, the procedural demand stays medium-low, but the linguistic demand can increase again. Stage 4, *Assessment*, is possibly the hardest stage, as all dimensions may be at their highest point, however it is recommended to decrease the procedural demand. The last stage, which sometimes

can merge with the fourth, is the *Feedback* and, depending of the students' performance and needs, most commonly either the conceptual or the linguistic demand could increase. I will be using this five-stage-sequencing recommendation in my analysis of the Technology and Music materials as a starting step in order to find how the linguistic dimension in integrated within the content.

To finish this section on CLIL, I would like to briefly address the difference between hard and soft CLIL, as later in the analysis I will talk about the high school in which the former type of CLIL was implemented. We use the term 'Hard CLIL' for a content-led instruction, whereas the term 'soft CLIL' is used to refer to language led instruction that is determined by the subject curriculum. This means that soft CLIL gives more importance to the language and the procedural dimensions, while hard CLIL focuses mainly on the conceptual and the linguistic ones (Ball, 2016: 23).

2.3 BICS and CALP

To finish this theoretical framework, allow me to introduce other key concepts in CLIL, Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP), because they are an important part of CLIL (Ball, 2016; Cummins, 2008). As Cummins (2008) explains, BICS make reference to the social language, the one we can use on a daily basis to maintain a regular fluent conversation. CALP, on the other hand, makes reference to academic language, oriented to any thematic context. While the former can be learnt in, as Cummins contends, two years, the latter takes up to seven, or even ten years to master. In addition, the latter implies a higher cognitive demand, such as analysing, summarising or evaluating, in combination with thematic context language that involves specialized vocabulary or expressions.

In spite of the fact that Cummins's theory has been criticized by Edelsky (in Helmut Daller, 2001), I consider this idea useful for the purpose of my analysis because CLIL lessons require a level of language proficiency not only for communication, but also for academic use. As Ball (2016: 25) states, CALP needs to be demonstrated and practised, which means that a student that is fluent in L2, that is, someone who has a good BICS level, may not have the required CALP level. This can lead to difficulties when studying a subject, so improving the learner's academic language proficiency requires time and the implementation of specific learning and teaching.

In the next section, Methodology, I will describe which steps were taken and how relevant criteria were identified, based on my theoretical framework, for the critical analysis of the target material.

3. METHODOLOGY

Since the object of my study is to carry out a contrastive analysis, the selected materials belong to two different academic subjects, *Technology* and *Music*, in the hard CLIL programme from a secondary high school. The reason I have chosen materials from two subjects and not only one is because the *Technology* materials were designed by the teacher himself, while the *Music* materials are based on a course book. I expect to find differences in the instructional design and in how the linguistic dimension is integrated in the content.

When it comes to designing instruction, teachers have to comply with the curriculum and it is popularly believed that content has been the most relevant aspect that teachers take care of while programming a Unit due to influence of more traditional ways of teaching, like the content curriculum model that characterises the classic humanist tradition of curriculum design (Finney, 2002). Regarding CLIL, while an integrated curriculum exists for the British Council programme in Spain (MECD/British Council bilingual programme, 2015), there is no actual curriculum for CILE1 programmes –the one these materials belong to– where a teacher can find explicitly how to integrate content with language; there are specific directions on methodology, evaluation criteria or the contents to be taught, other than those specified for the content area. However, as we have seen in our theoretical framework, competences can serve as a guideline. Their development should be clear in all subjects. Therefore, no matter the area of study, the linguistic competence in the foreign language should not be neglected in a bilingual class.

This is why I would like to see whether one material or the other take into account the development of the target learners' linguistic competence and whether the materials are designed in a balanced way to promote meaningful communication while teaching content. Or, in other words, I would like to elucidate if there is a balance between the linguistic and the conceptual dimensions mentioned in Ball's et al (2015) three-dimensional theory.

Firstly, I have chosen Ball's et al (2015) five-stage sequencing as an initial tool for my analysis. In my opinion, this will help me identify the level of importance given to the linguistic dimension throughout the first Unit of each material, so that later I will be able to work in more detail on how to develop the linguistic competence. The findings of the five-stage analysis can be found in the Appendix I.

Secondly, I will focus in more depth on the teaching strategy of the linguistic dimension. I have made myself five questions based on Ball's et al (2015), Ellis (2003), Nunan (2016) and Cummins (2008) contributions, which I have later converted into a table including these questions

and the collected data. This table can be found in Appendix II. The questions used to analyse the teaching strategy of the materials are the following:

1) How is the linguistic dimension integrated through the five stages? Is there any predominance of the conceptual or the linguistic dimension? While answering this question, I will also be checking if there is any stage missing from the recommended five.
2) Is there a predominance of form or meaning? Can learners negotiate the meaning or is there little freedom to choose the language? It is frequently seen that the activities integrated in a Unit can fit better for the purpose of revising theory chunks rather than encouraging cognitive processes or communication (Ball, 2016; Ellis, 2003). This is why I will analyse the pragmatic use of the activities and whether they are part of a lesson continuum, instead of isolated drilling exercises focusing on content or grammar.
3) Is there enough chance for information exchange, that is, meaningful communication? Is language used as a tool to accomplish certain tasks? In order to have good results in a bilingual class, there is a need for communication to happen. The language is a tool that has to be used to archive specific results and these can only be observable through performance (Ball, 2016: 24).
4) Are there any tasks oriented to real-world processes of language use? Do these tasks also foster cognitive processes that lead to deeper learning? Ellis (2003) and Nunan (2016) defend the idea that engaging higher order cognitive processes, such as selecting, manipulating, producing, evaluating and interacting, make the learning process faster and, more importantly, meaningful for learners.
5) Is the language used leaning towards BICS or CALP? In a hard CLIL programme, I expect to come across more CALP, as the subjects *Music* and *Technology* belong to academic thematic areas; hence, their vocabulary and expressions are going to be specialized.

The CLT approach and the Aragonese curriculum highlight the importance of shifting from a teacher-centred to a student-focused lesson while providing a pragmatically functional learning context. Communication is one of the main characteristics of CLIL teaching, as there should be room not only for concept acquisition, but also for academic language proficiency development. Ball (2015) contends that in a CLIL lessons the teacher should know how to combine specialized content with second language accurate use in order to provide effective bilingual teaching.

4. ANALYSIS

4.1 Context

The materials have been provided by the subject teachers from IES Santiago Hernández and, before tackling the analysis, we need to foreground a characteristic of this school which may be relevant for our purpose. As the English head of department informed us, the students in this high school come from different primary schools (*Camón Aznar, Monsalud, Ana Mayayo, Juan XXIII, Julián Nieto* and *Moreno Calvete*). This is significant because it means that their previous linguistic knowledge and L2 skills may differ considerably when they start 1st year of ESO. The high school belongs to CILE1 bilingual project, according to the PIBLEA programme from 2013 (*Orden de 14 de febrero de 2013*). This means that it offers one subject in English per course. The materials I will analyse are those for *Music,* which is taught in 1st year of ESO, and for Technology, which is taught in 2nd year.

4.2 Analysis of materials

4.2.1 Music Materials

I will start my analysis with the materials provided for the *Music* subject for the 1st year ESO course, which is the student's book *Listen, Play, Create – I* (López Carriche and Benayas Ayuso, 2015). We will focus our analysis only on the first Unit, *What is sound?* due to length restrictions for this Dissertation. The Unit is divided in three parts: 1.1, 1.2 and 1.3. All of them begin with a text for reading comprehension, but the last part is the only one that features number of practice activities.

Let me remind the reader that, firstly, we will be observing how the language is included along the five stages (Ball et al, 2015) in the Unit, to further analyse the activities in order to see whether they foster foreign language learning while teaching content.

Before providing the findings of this first Unit, I would like to state the expectations I had before analysing the book. As I said in the context section, students have different levels of proficiency in the first academic year in high school, so I was expecting the book to be more content-led than language centred. However, as the first Unit is taught at the beginning of the academic year, I also expect the conceptual dimension to be low in most section of the Unit, in favour of the linguistic and procedural dimensions, as the first Unit would belong to the *Activation* stage (Ball, 2016). It is important to point out that we did not have the teacher's book, so we could not see the methodological recommendations for the implementation of the Unit. Therewith I will proceed to comment critically on my findings of the analysed Unit.

4.2.1.1 Collected data analysis and suggestions for improvement

The fist Unit is presented in three sections, the third being the longest one. From our point of view, the activities presented along the Unit can be divided in two different categories: *reading comprehension* activities and *experimental* activities. The *reading* activities are self-explanatory, those that can be answered with the information from the text provided; and the *experimental* activities are those were students are encouraged to create, produce, experiment and interact with each other and the classroom environment. At the beginning, *reading comprehension* activities are more frequent, whereas from section three onwards, *experimental* activities are predominant. As Ball et al (2015) state, we can often see CLIL lessons using a text as a tool to dive into the topic of the Unit. However, this type of activities can work in two different ways: either providing useful language and concepts to start the learning process or becoming an inconvenience, as the text can be heavy to read due to a conceptual overload. Using the criteria set in my table in Appendix II, I will analyse whether these two types of activities integrate language learning along the Unit and, specially, if the *reading* activities do provide the useful language and concepts Ball (2015) talks about instead of becoming an added difficulty in the learning process.

Based on in-depth analysis of Ball's et al (2015) five stages, and following the Criterion nº1 of the table, I have detected that three of the five stages can be clearly found: *Introduction* (Appendix I, in textbook pages 4 and 5), *Complication* (Appendix I, in textbook page 6-15) and *Summary* (Appendix I, in textbook pages 16 and 17). However, I found no evident *Activation* stage, some sort of lead-in lesson that will help learners retrieve their previous knowledge, both linguistic and conceptual. There are a few *experimental* activities in part one, 1, 2, 3, and 8, which can be considered stage 0, *Activation* stage, as they could serve as a warm-up activity for students to retrieve their previous knowledge both in language and content. Therefore, it could be more cohesive to create an evident *Activation* stage at the beginning of the Unit with these activities instead of mixing them with the reading comprehension activities in the *Introduction* stage.

Similarly happens to the *Assessment* and the *Feedback* stages. There seem to be three stages overlapping in part three at the end of Unit 1: *Complication*, *Summary* and *Assessment*. There is a fill-in-the-gap activity review the content of the whole Unit, nº 38 on page 16, which seems more suitable for a *Summary* stage than for an *Assessment* stage, because its main focus is on form rather than providing a meaningful task with high order thinking involved (Ellis, 2003; Nunan, 2016). On the other hand, activity 35 could become the *Assessment* stage, as it consists of production of a musical piece based on previously learnt content. In addition, the list of vocabulary on the next page fits better for a summary section because it compiles the words that

appeared in bold in each of the texts and could be used as a revising tool before the *Assessment* stage.

The fifth stage, *Feedback*, where learners should be given critical comments on their results and work on errors, is non-existent. I realize that this is the hardest stage to detect, as it can appear in different forms: it can be just a score after a test or a review of common mistakes after assessment, or extra activities for reinforcement before finishing the Unit or even a project. It can be given during the Unit after each part or it can be given after each activity. It would depend of the methodological orientations of the book, the students' progress and the teacher's personal criterion. My suggestion to make this stage evident would be to provide the students with an evaluation chart with the criteria the teacher would follow to assess their final project. The chart could serve, firstly, as a guide for students during the *Assessment* stage and, secondly, it would allow a more detailed feedback after the assessment. In addition, if such evaluation chart could be partly designed by students, it would give rise to developing the Key competence Learning to learn (*ECD/489/2016, de 26 de mayo)*.

Before commenting on the next points in my checklist, I would like to address another aspect of the book's activities. Taking into account that there are two types of activities in the Unit, I have found that they alternate in a random manner along the Unit. In my opinion, 'jumping' from a *comprehension* activity to an *experimental* one and then, again, to a reading comprehension one gave me the impression of a disorganized layout. My impression was that the book was mixing cognitively engaging activities –*experimental* ones– with drilling activities –*comprehension* ones– with no specific purpose. For example, activities 4, 5, 6, 8 and 10 are engaging little communication. Learners can nourish their linguistic knowledge form the vocabulary and linguistic structures of the text, but little cognitive demand is required in the activities as learners only have to find the answers to fill in a few informational gaps. The remaining *experimental* activities can create a more dynamic and interactive environment for L2 use. Students could ask, debate and justify their answers with a classmate. As Nunan (2016: 4) explains, in this way, learners are 'mobilize their grammatical knowledge in order to express meaning'. Then, from our point of view, inserting the *comprehension* activities between the *experimental* ones can break the interactive environment, leading to little interaction in the foreign language.

A possible solution to this could be designing an individual activity that compiles all the reading comprehension questions. In part 1, for instance, before reading the text, a single activity could be introduced saying: '*Answer the questions by finding the correct information in the text*'

followed by the questions made in activities 4, 5, 6, 8 and 10. In part two and three the same division would be necessary to keep the coherence throughout the Unit. In addition, in part three, major changes should be done, as there should be a division between the theory-based activities and the purely practical ones. For clarity, this suggestion of the new layout has been developed in the Appendix IV as *Suggestion of Reorganized music materials*.

Let me focus now on Criteria nº 2 and nº 3 in my checklist, *negotiation of meaning* and *language needed*, which are closely related to the idea of creating of an interactive environment in class. Another issue to tackle here is, if these Criteria nº 2 and nº 3 exist, are they used to accomplish certain tasks? As Ellis (2003) contends, a task should be used pragmatically with some sort of gaps. There are many activities in the Unit with information gaps which can be solved by reading the provided texts. However, this is not what a task is meant to be because it has to, firstly, focus on negotiation of meaning and not only on form manipulation (Nunan, 2016) and, secondly, it should engage some cognitive processes –Criterion nº 6 in my checklist–, like classifying, selecting, ordering, reasoning and evaluating. A simple 'read and copy' activity cannot be considered a task. Some clear examples of this are, firstly, Activity 11, which states '*Complete the sentence'*. This activity can be solved by copying the information from the text. It involves no negotiation of meaning and no higher order thinking skills. A simple, undemanding way to improve it could be changing it into an activity where students have to work with a partner. One of them closes the book. The other one reads some of the pre-designed sentences aloud with provided gaps, for example, *'A* _____ *is made of metal and it* _____*'*. The first student would have to say the correct words to complete the sentence. If he/she gets them wrong, the other student would have to assess him/her with the correct information from the text. Even though students are working on a memory-type activity, other cognitive processes such as understanding, reasoning, remembering and information ordering are involved. They are not required to simply copy the information provided, but to use their own linguistic resources to fill the information gap.

Another example is Activity 23, which states '*Write the dynamics (mf-ff-f-p-pp) in order, from the softest to the loudest*'. This activity can also be completed by copying from the text. Therefore, it could be improved by adding peer-work and changing the instruction in order to foster production: '*Work with a partner. Look at the dynamics and think of a sound you associate to each of them. Set you own order, make the corresponding sound and your partner has to guess the correct order of your dynamics*'. In this way, the task becomes more complex at a procedural level, but the linguistic and conceptual demands are kept low. Even though there is no specific language form involved, there still would be room for meaning negotiation and communicative

behaviour. As Ellis (2003) contends, a task can engage productive or receptive skills. In this case, students would be working with listening and speaking at the same time, as they need to listen to their classmates' order of dynamics and then check if it is correct.

A third example is Activity 28, which says '*Work with your partner. Solve the crossword'*. Two problems appear in this activity. Firstly, there is no real peer-work, as the students can read the activity individually and just copy each other's answers; secondly, there is no meaningful communication. Moreover, a task should have a beginning, developing and ending steps; it should have a sense of completeness (Nunan, 2016: 4). Therefore, to improve this activity, I suggest the following instruction: '*Work with a partner, you are going to design a crossword. Look at the text you have read earlier. Select ten items of vocabulary. Write the definitions for your words. Design your crossword carefully and pass it to another pair so they solve it. Solve their crossword*'. . They would be engaged to use their own linguistic resources in combination with the new content.

After making these suggestions to adapt certain activity instructions to foster language use in combination with content learning, I will work on the next Criteria, nº 4, *communicative behaviour*; nº 5, *real-world processes of languag*e; and nº 6, *cognitive processes engagement* (Ellis, 2003; Nunan, 2016, Kumaravadivelu, 2006). Peer or group work is one of the most important pillars of CLIL education. The less the teacher speaks, the more the students interact with each other. In other words, they are able to do things with their knowledge and skills and doing things with language and content means to be able to perform a specific competence. Following Ball's et al (2015) and Ellis (2003) ideas about the fact that communicative behaviour involves any of the four skills, receptive or productive, I would like to evidence if the suggested activities in the book are really engaging student to student interaction. I found many group activities from page 11 to page 16, as it is the most practical part of the first Unit. Most of these activities imply working with a partner (activity 28, 29 or 35) or in groups (activity 33) while producing a piece of musical work. However, when it comes to the first pages of the Unit, there is only one activity, activity 1 on page 4, which requires group work and reads: '*Work in groups. Pick up one of the instruments below and explain to the rest of the class if you can see or feel with your fingers the vibration when you: pluck the strings of a guitar, hit a cymbal, hit a tambourine, play a xylophone*.' In my opinion, this is a good example of an interactive task where there is focus on conveying meaning. Such linguistic behaviour can be found outside class. People have to describe, identify, evaluate, express opinion, etc., in order to maintain communication, so, from my perspective, such experimental activities as nº 1 on page 4 do fulfil Criterion nº 5 *real-world processes of language use*. Even so, there are experimental activities that could be done in pairs,

but they are not designed in such way; e.g., activities involving filling tables (activities 7, 17, 18, 21 and 25) may be more interesting to solve with a partner, as there would be chance for debate and opinion exchange, that is, communication. The first ten pages are mostly reading comprehension activities. These activities could also be adapted to become a task and engage communication in the foreign language at the same time as learning the content, as I have shown in the three activities modified above. These modifications would also help to resemble the processes of language use that we find in the real world.

Finally, the last criterion in my checklist, Criterion nº 7, is related to BICS and CALP. If BICS is understood as the social language used to maintain regular communication (Cummins, 2008), this book does not teach it directly. I have observed only one activity that gave some importance to regular language structure, which was activity 29 on page 12: '*Work with your partner. Choose between high/low, long/short, and loud/soft and tell your partner. He/she has to play the object or instrument that he/she prefers.*' Then, an example follows, '*Example: Play a high, long and loud sound*'. It is the only activity which provides an explicit linguistic structure for students to repeat. I wonder which is the purpose of introducing a linguistic example at this point of the Unit when there were plenty of activities beforehand which may have required some sort of linguistic support to express students ideas, such as activities 1 on page 4, activity 9 on page 5, 27 on page 11, among others. In order to respond to these last activities, student need to make use of their own linguistic resources whereas in activity 29 they are given the structure. My suggestion is to omit the example on activity 29 because learners have already worked with texts; hence, they should know how to express their ideas at this point of the Unit. Regarding CALP, as this is a book meant for hard CLIL programmes, the predominance of academic language teaching is evident. Clear examples are the text inserts, the *comprehension* activities and some *experimental* ones involving work with music language, such as activity 34 and 35, on pages 14 and 15.

Summing up, this book shows some activities that do try to engage second language learning, but for the most part, they cannot be said to be a task-based instructional sequence. Taking into account that we are dealing with the *Music* subject, I understand that the production activities are oriented to the subject rather than to teaching and learning of the instructional language. However, as I have explained in the Theoretical framework when talking about the competence-based curriculum, all areas of study should work on developing the seven competences, and communication in the foreign language is one of them. The Aragonese curriculum for *Music* (ECD/489/2016) highlights the importance of the linguistic competence in the following way;

> La comunicación de las ideas propias, musicales o no, exige el uso correcto del componente pragmático – discursivo en su dimensión sociolingüística, así como de los diferentes registros lingüísticos, puesto que habrá que adaptarlos al contexto necesario.

That is developing communication skills in different registers and types of discourses is paramount, irrespective of the fact that the ideas communicated should be specific to the Music area.

I have found that many activities could be adapted to promoting interaction and meaningful communication in the L2, something that could improve students' linguistic and conceptual knowledge at the same time. *Experimental* activities are good opportunities to include language learning while still working with content but, it is my contention that in this textbook, most of them are not designed in this way. Another aspect to improve could be the general layout of the textbook, as it alternates reading comprehension activities with practical ones in what seems to be a random sequence. Many of the comprehension activity instructions seem to be aimed at repeating chunks of information based on the reading texts (Ball, 2016). Hence, they do not fit into the definition of a task (Ellis, 2003), since, firstly, the communicative behaviour is limited to text comprehension because there is little to none peer or group comprehension activities and, even though a few of these exist -like activity 11-, they drag the learners back to working with the texts rather than with one another. Secondly, the activities are mostly developing low-order cognitive processes as there are mainly informational gaps in most of the activities. Higher-order cognitive processes, such as analysing, rephrasing, summarizing or evaluating, which could involve L2 use are rarely seen. For instance, in activities 30, 33 and 35 higher-order skills, such as categorizing, selecting or evaluating can be identified, but these are more oriented to working with content than with language. Finally, the combination of low-order cognitive processes and text-based activities leads to little chance for negotiating meaning and little use of students' own linguistic resources.

In the following section, I will apply the same Criteria to analyse the Technology materials.

4.2.2 Technology materials

In this Section I will focus on the Technology class materials. This subject is taught in 2nd year of ESO. The materials for the second subject have been designed by the teacher himself and take the form of a *Moodle* course which contains different sections and Units. For my analysis, I will work only with the first Unit of the course. The Technology materials are presented in Appendix V.

Before providing the description of the analysed activities, I would like to describe my expectations about this subject. The decision to do away with a textbook and design all the didactic materials for a course requires teachers to have a good level of both content and language knowledge. Thus, I expect good balance between content and language teaching strategies in this subject. Since I am a language specialist, I cannot critically comment on the content dimension of the materials but I can contrast the BICS and CALP. Criterion nº &, with the one observed in the music materials. Another aspect that called my attention is the fact that this subject is taught in the second year of Secondary education. Therefore, students should be used to CLIL methodology by now. Nonetheless, it is a new subject and, thus, the subject-specific language could be new for learners. Now, I will be starting my analysis of the collected data and making suggestions for improvement if needed.

4.2.2.1 Collected data analysis and suggestion for improvement

As I am going to follow the same criteria which I used for the Music materials, this will allow me to see whether there are any differences between both subjects by the end of this section.

Starting with the first Criterion, Ball's et al (2015) five-stage sequencing, it is hard to tell apart one stage from another, as they seem to be connected in a fluent continuum, which not necessarily means a disadvantage. Here I provide a picture with the stages division with the documents of Unit 1 from the moodle platform:

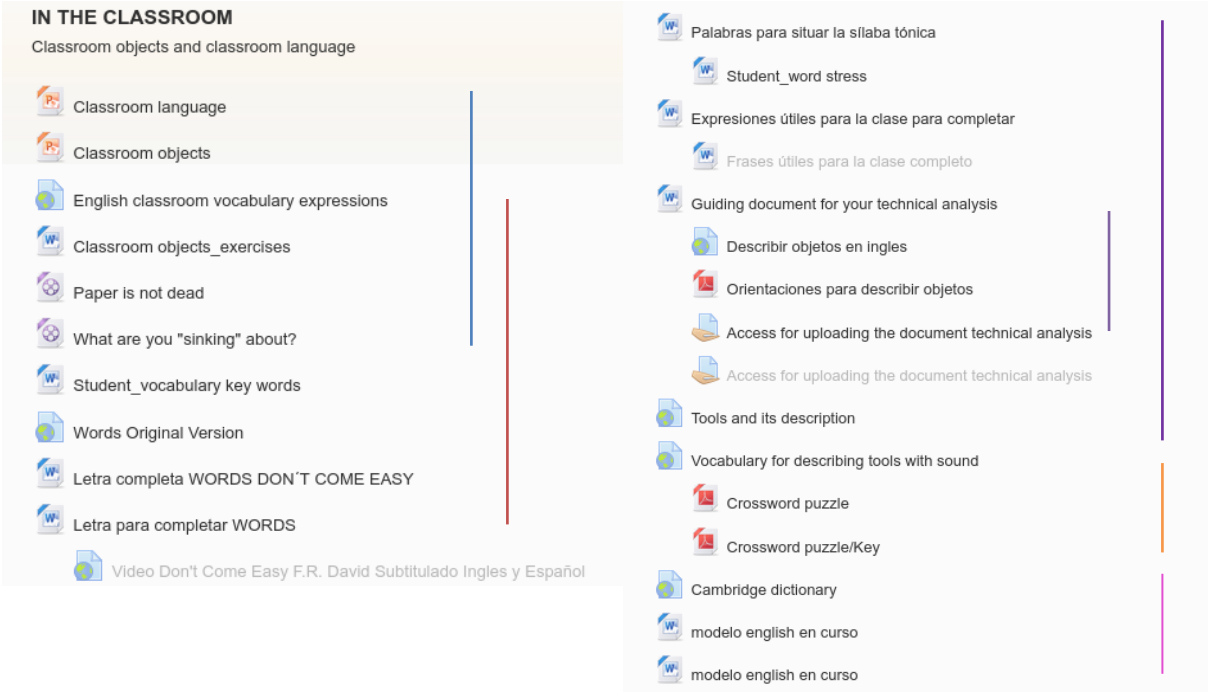

Figure 2. Moodle contents for Unit 1

Legend: Activation and Introduction, Complication, Synthesis, Assessment and Extra materials

As Ball et al (2015) contend, a good lesson plan or Unit design might go through all the five stages seamlessly. In this Unit, I have been able to detect four stages, even though they overlap one with another, as can be seen in Figure 1. The *Activation* stage, in blue in *Figure 2*, is a review of useful language and vocabulary for a Technology class, so students have the tools to begin learning the subject. The *Introduction* stage, in orange, merges with the video and song insertions, because these activities could retrieve students' linguistic knowledge before starting with the main content. The *Complication* stage, in purple, becomes evident when the linguistic activities begin to be more content oriented, as in the documents '*Expresiones útiles*' and '*Guiding document for your technical report'*. The *Synthesis* stage, in green, which takes the ~~in~~ form of a crossword summarises briefly, but with precision, the content learnt along this Unit. The *Assessment* stage, in yellow, is the final technical report. The stage that I found harder to find was the *Feedback*, non-existent in *Figure 2*, because there was no evaluation tool provided. As the *Assessment* stage is based on the technical report, some possible tools could be a self-evaluation chart, a peer-evaluation chart, a checklist, some reflexion questions, etc. based on the development of the technical report, which the teacher could elaborate with the students. The teacher could propose the following questions: *Did I/we put enough effort into the report or was it a do-it-the-last-nigh work? - Did I/we check the language? Have I/we proofread the report before uploading? Can I/we identify some terminology, studied in this Unit, when describing the object?* These questions could serve as a self-reflexion activity and help student realize if their report follows the needed requirements for successful task completion, as guidelines on the process and the language of the technical report could be included.

In addition, when the report instruction explains '*the most suitable ones will be selected and incorporated to the classroom consultation material*', there is no mention of the characteristics that would make a report 'the most suitable'. As Dörnyei (1994: 282) contends, one way to motivate our learners is to promote their autonomy by allowing them to make real choices and decisions in class. Therefore, one learning strategy here might be to establish the criteria for the 'most suitable report' in collaboration with the students' contributions. In addition, the decision making in this type of activity would develop the Learning to learn competence (ECD/489/2016). This way, learners may feel more confident and involved in the task, as opposed to what may happen if they do not know how they will be evaluated.

Starting with the analysis, compared to the Music materials, in the *Technology* materials there are no different types of activities. As these are not based on texts, there are not even questions that could be answered by coping. The order the teacher decided to implement the content, starting with BICS to finish with CALP in the technical report, appears to be sensible

and allows a graded immersion in the thematic context. At this point, I would like to highlight ~~that~~ the teacher provided me with the materials from the list in *Figure 1* page, but no additional material on methodology or implementation orientations was provided. I will explain why this aspect is important in better detail later, taking as an example the video materials.

My second and third Criteria from the table, *negotiation of meaning* and *freedom to choose the language,* were identified in order to see if language is used to accomplish a task. For this, some sort of gap is required in the Unit activities. In these materials, I have found some tasks. For example, inside *Classroom objects_excercise* includes activity 1.2 and 1.3. The fist activity consists in saying how things work and the instruction is the following: '*Work in pairs. Point to one of the classroom objects and ask your partner what it is for. Then ask your partner how it works*'. After the instruction, the following language structures are provided: 'Student A: *What's this for? It's for … + -ing / It's used for … + -ing / It's a device/instrument for …+ ing.* Student B: *Oh, I see. What do you call it?.* Student a: *It's a…*'. This is an example of a pre-task activity whose aim is to prepare the student for the next activity in 1.3, a crossword. Activity 1.2 has an information gap, so there is the possibility of encouraging negotiation of meaning through a productive skill, but the language used is given. Hence, I could state that the focus is on form rather than meaning, because student will stick to the provided structure instead of mobilizing their own linguistic knowledge (Nunan, 2016). On the other hand, Ellis (2003) explains that a task may predispose students to choose particular forms. In this activity, I see that, they are being pushed to use the grammatical structure the teacher wants them to practice (*for + verb + ing)* for correct academic use in the following activity, 1.3, or even in the final technical report. Activity 1.2 is a pre-task for activity 1.3, so I understand the focus on form at the beginning. Activity 1.3 is meant to be done in pairs and students should solve the crossword at the end, after listening to their partner's definition. In this case, there seems to be more freedom to choose the language for the definition, but the previous activity has already set a useful structure to follow. .

Going to the next three criteria in the checklist –Criterion nº 4 *communicative behaviour*; nº 5, *real-world processes of language* and nº 6, *cognitive processes*– regarding the first, I can state that overall, the Technology materials try to put emphasis on communication in class. The real-world processes of language are included as long as the language used in class resembles the one used outside the classroom, and for this, cognitive processes should be part of the communication behaviour. Examples of this are the previously mentioned activities and, possibly, the video materials. As there is no instruction about how to work with these videos, I would like to make my own suggestion of a possible implementation of these audio-visual materials taking into account my own criteria table.

The two videos are called ‘Paper is not dead’ and ‘What are you ‘sinking’ about?’ Both show a humoristic situation, the first about paper use, the other about a misunderstanding in English language. If these videos were to be projected in class, a way of integrating language could be by creating a debate at the end of each. As a pre-task (Ellis, 2003), student could share their opinion on what they are about to see. A during-task, after watching each video, could be answering, in pairs or in groups, some questions. This could engage cognitive processes such as analysing, selecting and evaluation the information seen in the video in order to construct their own opinion on the subject, which will help making the language learning process deeper (Nunan, 2016). Examples of questions for the first video could be ‘What do we use paper for?’, ‘How much paper do you use per day? When?’, ‘Is technology a good substitution for paper use in some situations? Why?’ The second video gravitates towards language learning rather than content. A few questions could be ‘Does your mother tongue have similar problems? Can you give an example of an expression that can be misunderstood?’ or ‘How does the context help understanding?’. This last video could be a starting point to tackle general doubts on language form. As I see it, promoting oral communication in such a way increases the linguistic demand in a CLIL lesson, but it does not mean the conceptual dimension is forgotten. As Ball (2016) explains in his metaphor of a ‘mixing desk’, one of the dimensions may need more attention in a particular lesson, which does not mean that CLIL methodology is neglected, as long as it is relevant for the thematic context.

Another example worth mentioning in this analysis is the final technical report, which I included in the *Assessment* stage. It consists of several questions that students should answer in order to describe an object or tool used in class. At the end of the *Guiding document for you technical report*, I could not find if this report is done individually, in pairs or groups. The instruction says *Student activity*, so I deduced it must be carried out individually. Even if does not engage a student to student interaction, it does not mean that it is not a task. For instance, there is freedom to choose the language to answer the questions and the questions provided are not a yes-no type answer. Students have to justify different aspects of the chosen object, so higher order thinking skills are involved, such as selecting, analysing or evaluating. A technical report is a document found in a real-world professional context; therefore, the language used to create it can be found in an academic context outside the classroom environment.

Finally, regarding the last two points in my checklist –BICS and CALP–, I found the Technology materials to be ‘easier’ than the Music materials. Let me explain my point of view. The Music materials are mainly supported by written texts about the thematic context, while these have a mix of content and language supporting materials. This makes them seem as less

conceptually demanding in comparison to the Music materials. Nonetheless, the ending task is a technical report, where the conceptual demand and linguistic demand rise to their highest. As I see it, the Technology materials started the learning process with BICS to ease students' immersion in the topic in order to concentrate on CALP by the end of the Unit.

4.3 Comparing both subjects

After analysing the Music and Technology materials with the criteria set in our checklist section, I can draw the following conclusions:

Unfortunately, analysing just the first Unit of each subject does not portray the full picture of the sequencing of the academic year. Due to space limits in this project, we have decided to select the first Unit, as it is the starting point of the year. The five-stage sequencing can be applied to a full academic year, therefore I assume than the first Units per subject are meant to be the *Activation* stage of the academic year. However, the development of the Unit should also follow a coherent sequence, which would facilitate a fluent immersion in the thematic context.

In the Music materials, I have detected that there is no *Activation* stage that would help the students retrieve their previous knowledge both about music and language. The Unit has three parts that always begin with a reading comprehension with various activities, which means that there is a focus on CALP (Cummins, 2008) from the first page. It is true that the texts try to provide the information in short sentences, that is, digestible chunks (Ball, 2016). However, let me remember that this book is aimed for first-year ESO students in a hard CLIL programme who may have not studied a whole subject in English before or who may not have the adequate language level to start with so much input comprehension.

In comparison with the Technology materials, I have found that the starting point is less demanding from the conceptual dimension and certainly, there is more language teaching. In spite of starting with some BICS (Cummins, 2008), in the form of lead-in or warm-up activities (*Classroom language* and *Classroom objects* documents), by the end of the Unit there is an evident emphasis on CALP, as the students have to produce a technical report.

Content predominance is not synonym of quality lessons in a CLIL classroom. In order to have an effective bilingual teaching programme, both Ball et al (2015) and Coyle et al (2001) agree that there should be a balance between content and language teaching. However, CLIL is not only about reception: Production plays a very important role for second language acquisition. In the suggestions for improvement for the Music materials, I have pointed out that there is little engagement of student-to-student interaction in the activities. Hence, I assume that lessons will

most likely be teacher led in the following manner: texts introduction, followed by the corresponding reading comprehension activities, and finishing with a few experimental activities. Just a few of these activities apparently foster pair or group work and production but, once again, I have detected that there seems no meaningful communication involved. In spite of saying '*Work with a partner*' in such activities as nº 1 or nº 11, most of them can be solved by copying the information from the texts with no need to interact with a classmate.

By contrast, I think that the Technology materials, which have been created by the teacher, have been developed taking language as the most important tool in class, perhaps over content. First of all, these materials try to provide enough meaningful context for student-to-student interaction, for instance in activities 1.2 and 1.3 in *Classroom objects_excecises*. The activities normally provide an information gap –like a definition for a concept in activity 1.3– at the same time as they try to encourage students to reason and decide –by matching the correct concepts with definition a partner provides–. [Office1] Regarding the importance of language, the teacher highlights some grammatical structures beforehand through *PowerPoint* and an explicit grammar summary, as in the *Classroom objects – exercises.* However, as I have already mentioned, this can somehow reverse the focus of the class: instead of focusing on meaning, it could end up focusing on form (Ellis, 2003). Even though this strategy could guide students on how to accomplish a task, there is a risk of sticking to structures provided and not using their own grammatical resources to accomplish the task (Nunan, 2006). This would transform a task into a traditional drilling activity. On the other hand, in the Music materials, there was only one activity by the end of the Unit, nº 29, which provided some sort of grammatical structure, in form of a simple sentence '*Example: Play a high, long and loud sound'*, where students just had to change the three last words.

As we can see, the Technology materials seem to integrate the language in the lessons in a more evident way than the Music materials do. The Technology teacher has prepared both the content he wanted to teach and the tools on how to learn this content, while the Music student's book offers mainly the specialized content and very little strategies to promote communication in L2. We understand that for such subject as Music, the production is expected to be made through music instruments, but, in a CLIL programme, language production should not be forgotten. As I have commented in the Music materials analysis, the Aragonese curriculum for *Music* (ECD/489/2016) highlights the importance of the linguistic competence arguing that developing communication skills in different registers and types of discourses is paramount, irrespective of the fact that the ideas communicated should be specific to the Music area. In addition, it was difficult to judge the Music materials without the teacher's book. This guide may have clarified

the language strategies for each part and the extra sources the teacher may have access to, such as cheat sheets, language summaries, etc.

5. CONCLUSIONS

This project started with the idea of elaborating a contrastive analysis between two types of materials for a hard CLIL programme in Secondary Education school in order to elucidate how the language has been integrated with the content in the teaching-learning process. The fist type of materials, as we have described, consist of a student's book where content and language were completely pre-selected, so the teachers would only have to implement the suggested lessons. The other type of materials was self-designed, which I thought could probably be more adapted for the development of the foreign language, while teaching the content, and would be suitable for the particular context and characteristics of the students in this high school.

I grounded my analysis on Ball's (2015) five-stage theory, as he explains how the conceptual, procedural and linguistic dimensions relate along these five instruction stages and differ in intensity depending of the stage. I used this theory only as a starting point in my analysis, in order to contrast the load of the linguistic dimension to the conceptual one. This would help me identify if the first Unit of both subjects included activities focused on the teaching of the second language.

The following step was setting the criteria to analyse how language was integrated and taught in these CLIL subjects. For this, I have selected key aspects mainly from the CLT and TBLT approaches to L2 teaching and learning (Ellis, 2003; Nunan, 2016) and connected them with Ball's (2015) and Cummins (2008) contributions on bilingual teaching and academic language proficiency development. The summarized data can be found in a table in Appendix II, but can also be read in an extended way in the Methodology section, or even in further detail with examples from both subjects in the Analysis section. These criteria also guided me in my suggestions for improvement. If these criteria were not relevant enough in the materials, it probably meant that language was not integrated in a balanced way with the content. Hence, I would modify the activities in order for them to meet the requirement of my criteria and create opportunities for second language teaching and learning within the content.

All this process has been carried out to evidence two issues that I have mentioned in my Introduction section. Firstly, as hard CLIL programmes are content led (Ball, 2016), language teaching often may go to the background of the learning process. My analysis has evidenced this especially in the *Music* materials, which consisted of a textbook instruction. They were

predominantly led by content and little language teaching was made relevant. However, 'the existence of content is predicated on language, and the existence of language is predicated on content' Ball (2016: 17), so both dimensions should be given same importance in the learning process in order to develop linguistic competence along with conceptual learning, since the latter requires the former.

Secondly, I wanted to state the need for content teachers to coordinate with language teachers in order to provide a balanced lesson planning, that would not lean towards teaching neither only content, neither only language. The *Technology* materials seem to meet these requirement much closer than the *Music* ones, as the teacher prepared the resources and materials for the whole Unit not only based on the curricular content for the Subject, but also in the language the student should learn to use. The balance between content and language that the *Technology* materials seem to provide can be the result of good planning and coordination between the language teachers and the content teachers.

To finish this concluding section, I would like to explore the avenue for future professional development in relation with the results I have gathered from my analysis. Preparing materials for CLIL programmes is a challenge. Content and language knowledge are key to, firstly, unpack the curriculum and, secondly, design the materials for an academic year. An added difficulty is not having an integrated curriculum for CILE1 programmes in comparison to the one the MEC-British Council programme has, which gives the guidelines on the methodology, the content and the evaluation criteria teacher should follow in each course. CILE1 teachers use the subject curriculum to design their materials, but the fact that they are teaching in a second language requires them to look at the English curriculum too. The issue appears when content teachers have to incorporate second language teaching and learning strategies into their subjects. This may become impossible, as they are not language specialists, which may result in one of the conclusions of my analysis: focusing on content teaching and learning and dragging the language to the background. Therefore, in my opinion collaborative work between language and content teachers is the starting point to drawing an outline of what could be, perhaps in a not so distant future, an integrated curriculum for CILE programmes.

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Orden ECD/489/2016, de 26 de mayo, por la que se aprueba el currículo de la Educación Secundaria Obligatoria y se autoriza su aplicación en los centros docentes de la Comunidad Autónoma de Aragón.

ORDEN ECD/823/2018, de 18 de mayo, por la que se regula el Modelo BRIT- Aragón para el desarrollo de la Competencia Lingüística de y en Lenguas Extranjeras en centros docentes públicos no universitarios de la Comunidad Autónoma de Aragón.

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APPENDIX I

First step of the analysis using Ball's five-stage sequencing

Music materials: *Listen, Play, Create – I.* Unit 1: What is sound? (1st ESO)

- Activation stage and Introduction stage: Part 1, pages 4-5

The beginning activities of a lesson should correspond to Ball's et al (2015) Activation stage. In spite of having activities that we can relate to the Activation stage, 1, 2, 3, 7 and 10, the first part mostly seems suitable for the Introduction stage because of the following reasons.

Firstly, it is introduced with a reading, *The sound. Production and transmission*. The text provided is short, important vocabulary is highlighted in bold and there is a picture of a sound wave. As Ball et al (2015) state, it is very frequent to see CLIL lessons using a text as a tool to dive into the topic of the Unit. However, this type of activities can work in to different ways: either providing useful language and concepts to start the learning process or becoming an inconvenience as the text can be heavy to read due to a conceptual overload. Let us not forget that we are at the first lesson of the first Unit, at the beginning of the year, and that students belong to a soft CLIL programme. Therefore, we consider that introducing a Unit with a text with no previous activation phase can lead to nearly immediate information loss, as there is no evident warm-up or lead-in phase to the topic.

Secondly, the lessons provides several activities which, from our point of view, can be divided in two different categories: reading comprehension activities and experimental activities. The reading activities are self-explanatory, those that can be answered with the information from the text provided; and the experimental activities are those were students are encouraged to create, produce, experiment and interact with each other and the classroom environment. We consider that both types of activities are helpful for CLIL lessons, however the order they are presented in the lesson seems, from our point of view, slightly incoherent. For example, the lesson starts with a reading and the first activity is experimental because they are have to work in groups to describe vibration when playing certain instruments; only activity 4 is based on the text information. Therefore, why starting with a text when you ask your students to experiment? We think that changing the layout of the activities would provide a more fluent sequence between the Activation and Introduction stages compressed in this lesson. Our suggestion for improving the sequence would be the following: experimental activities 1, 2, 3 and 8 first, as they would foster the students' previous knowledge activation, followed by the reading insert *The sound. Production*

and transmission with the corresponding comprehension activities 4, 5, 6, 7, 9 and 10. You can see this reorganization in Appendix IV.

Finally, we would like to point out the lack of any other support, but the text and only one image. In a hard CLIL programme, the conceptual overload in the early stage should tend to decrease in favour of the linguistic and procedural dimensions (Ball et al, 2015), and in order to facilitate the concepts' acquisition other types of comprehension and learning support, such as visuals, need to be incorporated. For example, in the experimental activity number 1 several instruments appear, guitar strings, cymbal, tambourine and xylophone, which can be easily illustrated. Similarly happens in activity 3 where several situations are described to find out the environment the sound propagates through. The linguistic demand is quite high as students should understand perfectly the context provided, so if there is any sort of language barrier the activity cannot be accomplished. To lower the anxiety level caused by a low language knowledge, we think that visual support is essential. This way the activity is accomplishable procedurally, even though there may be a linguistic barrier.

- Complication stage: Part 2, pages 6-8

The second lesson follows a similar pattern as the previous. It starts with a text, *Properties of sound*, which is longer; it has the important concepts highlighted in bold and it is divided in two section, the first one on page 6 and the other on page 7. The whole reading, which would take a full page even tough it is divided in two sections, evidence that the third stage, Complication, has begun. This stage is the longest in time and with the highest conceptual demand (Ball et al, 2015). The text itself becomes less appealing as it becomes heavier to read with an increasing amount of CALP as specialized concepts in bold appear more frequently and there are constant definitions, e.g., '*Frequency is the number of vibrations per second. […] A low sound has a low frequency. […] We can't hear sound lower than 20 vibrations […].We name those sound infrasounds. […] As a general rule, small instruments have high-pitched sounds […].*' However, it still tries to conserve small digestive chunks by providing the information in short paragraphs with as simple and short sentences as possible.

As this lesson is the beginning of the third stage, we consider that using a text as a starting point of the lesson may be useful tool as it introduces relevant concepts for further comprehension and activity accomplishment. Once again, we have found the same division with the types of activities as in the previous lesson. There are reading-related activities, 11, 12, 13, 16, 18, 19 and 22, and experimental activities, 14, 15, 17, 20 and 21. This means that the workload is not only related with text, but also with experimentation.

We consider that the proposed layout is not as disorganized as in the previous lesson because we find the text essential to introduce the vocabulary that further is used in the experimental activities. However, we do think that changing the activities order can improve the fluency and sequence of the lesson. For example, the first text extract could be introduced after activities 11, 12, 13, 16 and 18 arranged in one single activity (see Appendixes, Reorganized music materials from Unit 1, *Listen, Play, Create – I*'), followed by the experimental activities 14, 15, 17. Something similar could be done with the second text extract, firstly introduce, the reading-related ones, 22, and, finally. the experimental activities 19, 20 and 21.

We would also like to state that in this lesson there is little visual or listening support when it comes to dealing with BICS (Basic Interpersonal Communicative Skills), for example, in activity 17 you can find a list of sounds –school bell, door slam, motor, siren, bird and thunder– that must be divided into low-pitched and high-pitched sounds. It would be recommendable to provide at least the sound of each element to lower the linguistic demand in favour of the procedural effectiveness. Note that we are analysing the student's book and not the teacher's book, so we do not know if there are any additional audio materials for such activities. We base our conclusion on the fact that the instruction of the exercise is 'Classify these sounds' and not 'Listen to the following sound and classify them in the following categories', for example. Another important remark is the fact that there is no peer work in this lesson, an important pillar in CLIL classes. In the previous lesson, in activity 1 there was group work. Following Ball's et al (2015) statement and following the ideas do Dörnyei (1994), peer work can make students feel safer when it comes to solving problem in other language and it would lower the anxiety level in relation with the correct performance on the activities.

- Complication, Synthesis, Assessment and Feedback stages: Part 3, pages 9-16 and Key Vocabulary, page 17

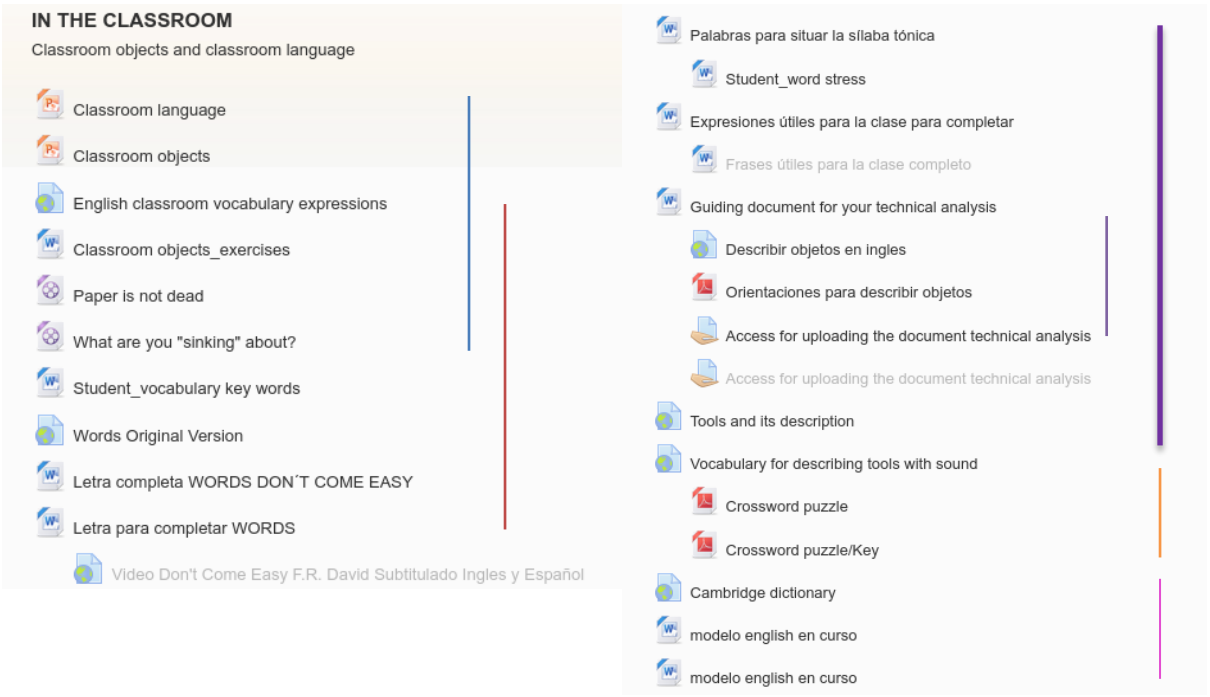
This is the last part of the Unit and the longest one. The same as the previous lesson, the beginning of part 3 belongs to the Complication stage as it still deals with concepts explanation. The lessons begins with a text that later is followed by six activities. Three of them are for reading comprehension check, 23, 24 and 28, and three are experimental 25, 26, 27. After page 12, there is an evident emphasis on practice based on the theory learnt along the three lessons, what we consider to be the final part of the Complication stage. On pages 15 and 16, there are some activities, 36, 37 and 38, which can be part of the Synthesis or Assessment stage because it is a revision of the whole Unit with a fill-in-the-gaps activity based on all the information from previous texts. At the end, there is a list of Key vocabulary with those words that appeared in bold throughout the lessons' texts.

In the third part, three stages overlap. There is no clear differentiation between them, which not necessarily means there is a bad sequence, as Ball et al (2015) suggest, many times a sequence can be designed in a way where activities allow an unnoticeable flow between stages. However, in the third lesson of the book we find it to be somehow confusing as the first two parts and the first pages of part three are structured in the same way: a text followed by activities on the topic; but from page 10 onwards there is an evident emphasis on practice activities. For example, activities 29 until 37, page 12 to 15, are purely experimental. Students are encouraged to listen, give opinions, create with Audacity their own materials, interact with peers, etc. We think it could have been a good option to make a visual division between theory lessons and practice. This section could be called *Listen and Create*, similar to the book's title, to evidence the practical nature of the activities, as there is a clear distance from reading comprehension activities.

Another issue is that the Synthesis stage on page 16 activity 38 appears as if it was immersed in lesson three when its real function if to revise the students' knowledge as it states 'Fill in the summary of the lesson'. Another section could be created here called, for example, *Rewind* as it refers to the music context and means going back, exactly what the Synthesis stage does. However, if we were to consider this page the Assessment stage instead of the Synthesis, some production activities could be added after the fill-in-the-gaps activity. Learning both content and language is not based just on reception and about memorizing, but also about production, e.g. the activity 35 can be used as an assessment tool as it considers all the previously learnt theory and involves production using a recording programme, Audacity.

Technology materials: Unit 1 – In the classroom (2nd ESO)

The provided materials for this subject are not based on book instruction. The teacher has designed them, so the analysis of the Unit cannot be followed by pages, as in the previous subject. The technology teacher has provided the activities and material of the first Unit for 2nd year of ESO course, as it is the only subject available in the bilingual programme for this year. We are going to provide the caption of the complete set of materials in the first Unit available in the high school Moodle platform with the stage differentiation:



Legend: Activation, Introduction, Complication, Synthesis, Assessment and Extra materials

If we were to analyse all the Units of the academic year and try to divide them in the same five stages, we can state that this Unit would be clearly immersed in the activation phase of the academic year, as it seems to provide lot of scaffolding (vocabulary and grammar structures), helpful even for further Units, e.g. language in class, basic vocabulary or pronunciation instruction. However, our analysis is focused within the content of the Unit, so we tried to make the five-stage division with the materials provided. We also consider important to mention that we have not been provided a teacher's methodological orientation for the suggested activities, neither the access to the Moodle platform to access all the materials. The only documents that do have some type of instructions are the 'Classroom objects' activity and the technical report.

We are going to start commenting the analysis of these materials in a different way than the music ones. There, we had a clear division in three parts, which could correspond to a full lesson; however here there is no such clear division. Therefore, the following division is made based on characteristics of each stage and how do the materials relate to them.

- Activation stage, possible Lesson 1:

Two PowerPoint presentations are the key elements of the beginning of the Unit. They present the general useful language in class as well as help students remember items of vocabulary. As it is the starting Unit and the first time the student are studying this subject in English, we consider this to be a coherent start of the course, however we find the vocabulary quite basic taking into account that they have probably studied the same objects in normal English

lessons. Another alternative could be introducing more technical vocabulary, e.g. drill, hammer, hot glue, silicone, sandpaper, screwdriver, etc., so they get to learnt the specific vocabulary used in a technology class rather than the general one (paper, scissors, eraser, whiteboard, etc.), but we will see that these terms are introduced a bit later in the Unit. In general, the Activation stage is low in demand for all the dimensions. If the vocabulary difficulty had been higher while using the same matching activities and pair work, the conceptual demand could increase slightly and so become more challenging for the students. We have to point out that in the 'Classroom objects' exercise, the teacher makes emphasis on language rather than content, as he provides scaffolding before doing the activity. This serves as a good example of alternation between focus on subject content and language use, described in the CLIL theory. There was no such alternation in the music materials, which evidence a clear predominance of content over language.

- Introduction stage, possible Lesson 2:

As we can see in the Moodle guide, the two initial stages overlap with each other. It was hard for us to tell which of the activities do really belong to the Activation stage or the Introduction stage because everything would depend of the number of lessons devoted to teach these materials. For the second stage, we chose the 'Student - vocabulary key words' activity and the fill-in-the-gaps lyrics activity, as the first one would serve as a revision of the vocabulary introduced in the activation stage and the second would finish the lesson. When providing the materials, the teacher gives several links where students could extract the information for the vocabulary activity. One of the links is '*Herramientas en inglés*', which introduces the vocabulary of a technology class, the one we suggested in the previous stage, or the Cambridge Dictionary to search for definition. In addition, the teacher again provides with some scaffolding in form of examples, '*Propuesta uso vocabulario de clase-Descripción*', so students can fill in their own list. This evidence the blurring line that cannot really divide this stage from the previous.

We also consider that the two videos, 'Paper is not dead' and 'What are you 'sinking' about?' could be included in this lesson in order to foster debate. Again, this would depend of the teacher preference and timing. Overall, this stage also has very low demand in all three dimensions. If we were to create a debate based on the videos, the linguistic demand would increase, however we think there is a lack of specific content related to technology in them, which is not necessarily a bad point. As we had commented in our theoretical framework, CLIL lessons are not only about the subject, but also the language. The two videos can be a good tool to introduce some opinion language, increasing so the demand of the linguistic dimension.

- Complication stage, possible Lesson 3:

As Ball et al (2015) state, the complication stage should be the longest one in time due to its complexity; main concepts and theories are acquired during this stage. However, in the materials provided we also found it quite difficult to consider any material purely from the complication stage. We have decided to include the word stress activity, the classroom expressions activity and the guidance for a technical analysis in this stage as they introduce new concepts and also because the technical analysis is the activity which would require more time to conclude. The dimension relation starts to differ, the conceptual demand becomes medium as they have to use the vocabulary learnt previously, the procedural also stays medium as the have to follow the steps on how to write a technical analysis, and the linguistic demand becomes high, as the activity itself requires a specific language use and accuracy.

- Synthesis stage, possible Lesson 4:

'Vocabulary: describing tools with sounds' activity and the crossword seem low in procedural and linguistic demand as the definition for the tools in the crossword may be given though sounds rather than descriptions. Due to this, we have considered these materials to be part of the synthesis stage because it provides a general revision of the previously taught content and, as the main content was vocabulary, the revision can be done through a crossword.

We find this stage quite short, however we do understand this as the students may be doing their main project –the technical report– at the same time in class after the introductory activities, as the guide of the technical report states in page 2 point 5 'You will dispose two classroom sessions for elaborating it'. This final project can be considered not only part of the complication stage, but also it becomes the assessment tool for the next stage.

- Assessment and Feedback stages, possible Lesson 5:

Both stages are closely related because the guide to elaborating the technical report says in page 2 point 4 'A session will be devoted to show the works in public through projection in the classroom and defense of the student. The exercises will be graded and the most suitable ones will be selected and incorporated to the classroom consultation material'. Both stages are clear and correlated; the only aspect we are missing is the evaluation tool. The teacher has not provided with any evaluation chart or checklist with the criteria that would back the students' marks.

The assessment stage is defined by a high demand in the conceptual and linguistic dimensions, which the final project seems to follow as they have to give a detailed description of a technology classroom tool. The procedural demand should stay medium or low in order not to

overload the students. In this case it is probably a medium demand as there are several instruction to do the report: '*a. Personal identification, b. One or two pictures of the object, c. A sketch of the object with general measures, d. A detailed technical analysis of the object following the detailed instruccions we saw before'*. Regarding the feedback stage, as we have no evaluation tool to analyse, we cannot establish the dimension relation; however, we think that there should be a balance between the three dimension, as CLIL theory recommends, because to achieve a certain competence students need to do *something* with the learnt language and concepts.

Overall, we think that by creating your own materials, a teacher can be more flexible to decide when he/she wants to emphasise language teaching or content teaching. This allows to fit better into the students' needs, work with any type of gaps (either linguistic or conceptual) and to make the subject more approachable. In addition, the use of hyperlinks and extra materials at the beginning Unit can lower the anxiety levels of the students, who are facing this subject for the first time, as it makes it seem like the important is not memorizing but the investigation and learning processes. In spite of fearing that this Unit was going to be too simple regarding content, the teacher has added a specialized task, the technical report, what supports the idea that this subject is not about only practising English language, but also about acquiring specialized knowledge.

APPENDIX II

Table with collected data from analysis based on the identified criteria from the Theoretical framework

Legend: **0:** doesn't appear, **-** **:** appears rarely, ✓ **:** present

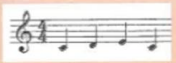
	1. Ball's (2016) five stages	2. Negotiation of meaning (gaps) (Ellis, 2003)	3. Freedom to choose language needed (Ellis, 2003; Nunan, 2016)	4. Communicative behaviour (eg. ss-ss interaction) (Ellis, 2003; Nunan, 2016)	5. Oriented to real-world processes of language (Ellis, 2003)	6. Engages cognitive processes (classifying, ordering, reasoning, etc.) (Ellis, 2003; Nunan, 2016)	7. BICS (Ball, 2016; Cummins, 2008)	CALP (Ball, 2016; Cummins, 2008)
Music materials	Only 3 Activation and Assessment+ Feedback missing	- Mainly information gaps in comprehension activities ✓Experimental activities	✓ in experimental activities **0** in reading comprehension activities	- Appears rarely in experimental activities and little in comprehension activities	- Experimental activities **0** Comprehension activities	**0** Comprehension activities ✓ Experimental activities	- Mostly in experimental activities where language is not predetermined	✓ in text, in comprehension activities and experimental activities instruction
Technology materials	✓ Feedback is the only difficult to detect	✓Information gap with guidance	- Guidance questions to help	✓ Most activities are done in pairs	✓ All activities are aimed to be able to write a technical report	✓ selecting, analyzing, defining, debating	✓ included in activities like 1.2 in *Classroom objects-exercises*	✓included gradually to accomplish the technical report

APPENDIX III

Music materials: *Listen, Play Create - I*

LISTEN, PLAY, CREATE - I

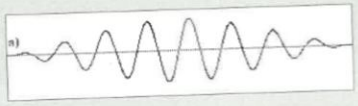
ESTER LÓPEZ CARRICHES
JORGE BENAYAS AYUSO

CONTENTS

The activities with listening/videos, the Internet resources and the digital activities in this book can be found at the blog: http://listenplaycreate.blogspot.com.es/, classified by lessons.

LESSON 1.- WHAT IS SOUND?

1.- THE SOUND. PRODUCTION AND TRANSMISSION.

All sounds are **vibrations**. Those vibrations propagate as **waves** through a **medium** such as solids, liquids and gases. Sounds cannot propagate through the **vacuum** because the waves don't have a medium to pass through.



The **speed of sound** depends on the medium. For example, the speed of sound through air is around 340 meters per second (m/s). It is faster through water (more than 1,000 m/s) and the fastest through solids (more than 5,000 m/s through steel).

Sound and noise are physically the same. Noise is a sound that we don't like because it is unpleasant or because it disturbs us. That depends on our opinion.

Activity 1.- Work in groups. Pick up one of the instruments below and explain to the rest of the class if you can see or/and feel with your fingers the vibration when you:

- *Pluck the strings of a guitar.*
- *Hit a cymbal.*
- *Hit a tambourine.*
- *Play a xylophone.*

Activity 2.- What happens when you stop the vibration of the instruments above?

Activity 3.- Where is sound propagating through when...

...you hear while diving?
...you hear your neighbour through the wall?
...you feel and hear the tuning fork when it vibrates against your elbow?
...the Indians in the films lean their ears on the floor to hear the enemies coming?
...you can hear your friend with two plastic glasses joined by a tense string?
...you watch TV?

Activity 4.- What is the speed of sound through air?

Activity 5.- What is the medium through which sound propagates the fastest?

Activity 6.- Where is there no sound and why?

Activity 7.- Classify in noises or sounds according to your opinion:

A dog barking - The waves at the beach - The wind moving the leaves of a tree
A bird singing - An alarm - The school bell.

Add more noises or sounds and compare them with your partner.

Noises	Sounds

Activity 8.- We are always hearing something. It is impossible to be in total silence although we think we are. Check it like this:

Be quiet. Close your eyes for a minute and focus on the sounds or noises that you can hear.
List everything that you heard. Compare with the things that your partners heard.

Activity 9.- Listen to this excerpt and answer:

Do you think this piece consists of sounds or noises?

Why?

Activity 10.- Are these statements true or false?

a) Sound is a vibration that propagates as a wave through solids, liquids and gases.
b) The speed of sound through water is around 340 m/s.
c) Noise is a pleasant sound.
d) There are sounds everywhere in the Universe.

2.- PROPERTIES OF SOUND

The four properties or characteristics of sound are:
pitch, duration, timbre (also called tone colour) and intensity.

A) **The pitch** refers to **high-pitched or low-pitched sounds**. It depends on the **frequency**. The frequency is the number of vibrations per second. Its unit is the hertz (Hz). A high sound has a high frequency, a lot of hertz. A low sound has a low frequency, few hertz.

Human beings can't hear all frequencies. We can't hear frequencies lower than 20 vibrations per second (20 Hz). We name those sounds **infrasounds**. Some animals such as dolphins and whales can hear them. We can't hear frequencies higher than 20,000 vibrations per second (20,000 Hz). We call them **ultrasounds**. Some animals such as dogs and bats can hear them.

The **tuning fork** is made of metal. When it vibrates it always produces 440 vibrations per second (**440 Hz**). We call that sound **la or A.** It is like a compass in music. The instruments can be tuned from that note and it is useful for the choirs, too.

As a general rule, small instruments have high-pitched sounds and big instruments have low-pitched sounds. For example, a violin is higher than a bass because it is smaller.
*(*Remember: Large-Low)*

Women have higher voices than men because their vocal cords are smaller.

Activity 11.- Complete the sentences:

The pitch refers to_____. It depends on the _____.

Activity 12.-What is frequency and what is hertz?

Activity 13.-Has a high-pitched sound a high frequency?

Has a low-pitched sound few hertz?

Activity 14.-Where do you find the low-pitched sound in a keyboard or a xylophone: to your left or to your right?

Which are the high-pitched keys, the short keys or the long keys?

Activity 15.- How many holes do you have to cover to get the lowest pitch with the recorder?

Activity 16.- Do women have a higher or a lower voice than men? Why?

Activity 17. Classify these sounds into low or high and add another example of every kind.
School bell - A door slam - Motor - Siren - Bird - Thunder

Low	High

Activity 18. How do we name the sounds higher than 20,000 Hz?

Which animals can hear them?

How do we name the sounds lower than 20 Hz?

Which animals can hear them?

B) **The duration** refers to **long and short** sounds.

C) **The timbre or tone colour** allows the listener to identify the instrument, the voice or object that is producing the sound.

If a piano and a violin play the same pitch, with the same volume and the same duration, we differentiate them thanks to their timbre. It depends on the material that vibrates and the specific components of the sound waves.

D) **The intensity or volume** refers to **loud and soft**. It depends on the **amplitude** of the sound wave.
Don't mix up pitch and intensity: a sound can be high and loud or high and soft, low and loud or low and soft.

We live surrounded by sounds of different volumes. Think of examples in your daily life that are soft or very soft, intermediate, loud and very loud:

- Soft and very soft:
- Intermediate:
- Loud:
- Very loud:

We measure the intensity with **decibels (dB)**: These are the decibels of some daily life sounds:

Sound	Decibels	Other examples
Sounds in the countryside	10	
Quiet library	20-30	
Conversation among few people	40	
Conversation among a lot of people	60	
Vacuum cleaner	70	
Train	80	
Traffic	90	
Hand drill	100	
Loud rock concert	110	
Plane engine	120	
Pain begins	130	
Permanent damage	140	

Activity 19.- Write in the right cell these sounds (you can guess or find it in the Internet):

Disco - Phone ringing - Shot - Motorcycle - Light rain
Alarm clock - Leaves moving - Explosion - Television

Activity 20.- Listen and answer: Is the sound of a woodblock shorter or longer than a cymbal?

Activity 21.- Classify the following sounds in the chart: *A whistle, a cat purring, a door slamming, an alarm. Add another four. Share with your partner.*

Low and soft	*Low and loud*	*High and soft*	*High and loud*

Activity 22.- How can we distinguish two sounds of the same pitch, duration and volume?

3.- THE INTENSITY IN MUSIC: DYNAMICS

The intensity in music expresses different emotions, because the effect of music is different depending on its volume. It can even define styles or types of songs: Heavy metal has to be loud, but a lullaby has to be soft.

The composers show in the scores the volume or intensity of every passage with Italian words or their abbreviations. This is called ***dynamics***:

ABBREVIATION	ITALIAN WORD	MEANING
pp	*pianissimo.*	VERY SOFT
p	*piano*	SOFT
mf	*mezzo forte*	INTERMEDIATE
f	*forte*	LOUD
ff	*fortissimo*	VERY LOUD

Gradual changes of intensity

Sometimes a passage gets gradually softer or gradually louder. There are two ways of expressing it:

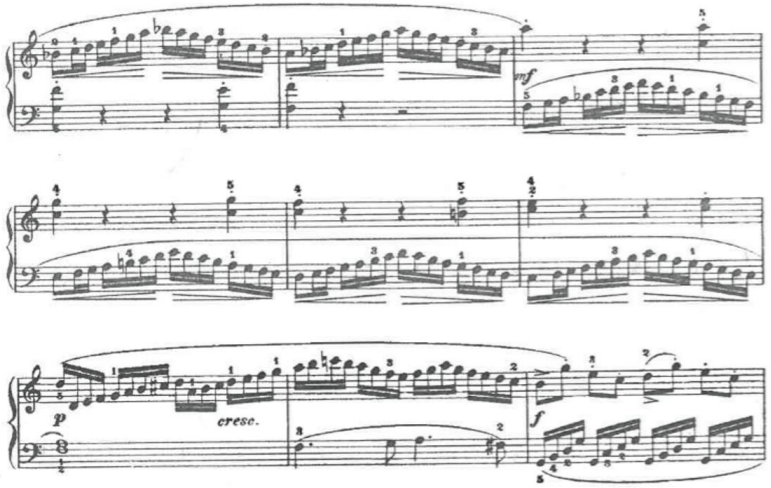
ITALIAN WORD AND ABBREVIATION	HAIRPIN	MEANING
Crescendo o *cresc.*		GRADUALLY GETTING LOUDER
Diminuendo o *dim.*		GRADUALLY GETTING SOFTER

Activity 23.- Write the dynamics in order, from the softest to the loudest:

mf - ff - f- p -pp

Activity 24.- Which are the two ways of expressing that the intensity gets louder and softer?

Activity 25.-Identify the dynamics and fill in the chart below:



Bar	Dynamics	Meaning
2		
3		
7		
7		
9		

Activity 26.- Listen to the piece "In the hall of the mountain king" , from Peer Gynt by Edvard Grieg. The same passage is repeated several times, but the volume changes. How?

What is the effect that it produces?

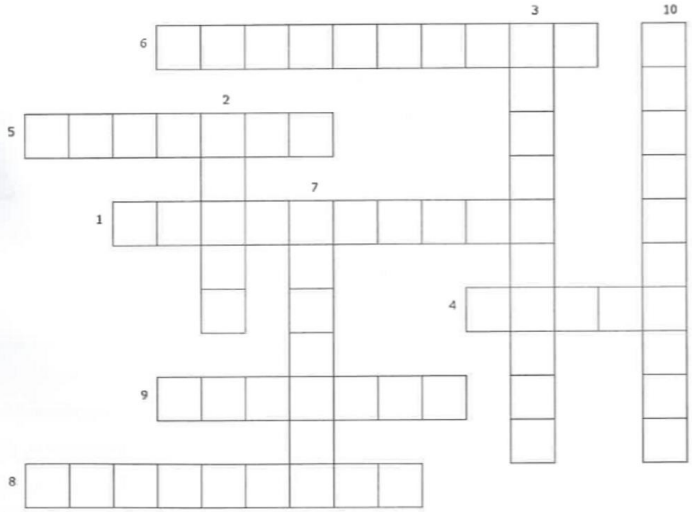
Activity 27.- Listen to these two versions of the same song: Mr Sandman, by The Chordettes and by Blind Guardian.
How does the intensity change?

How does the song change because of that?

Activity 28.- Work with your partner. Solve the crossword:

ACROSS
6. Very loud.
5. Sign to indicate *crescendo* or *diminuendo*.
1. Very soft.
4. Loud.
9. Unit of intensity.
8. Gradually becoming louder.

DOWN
2. Soft.
7. Dynamics are written in this language.
3. Moderate.
10. Gradually becoming softer.



Activity 29.- Work with your partner. Choose between high/low, long/short and loud/soft and tell your partner. He/she has to play it with the object or instrument that he/she prefers.

Example: Play a high, long and loud sound. Then your partner plays a cymbal.

The rest of the class has to say if the sound is right or not.

Activity 30.- Fill in the gaps according to the sound that your teacher or partner makes.

	Pitch		*Duration*		*Intensity or volume*		*Timbre or tone colour*
	High	**Low**	**Long**	**Short**	**Loud**	**Soft**	**What is it?**
1							
2							
3							
4							

Activity 31.- Listen to these musical portraits of animals form "The carnival of the animals" by Camille Saint-Saëns and fill in the gaps.

	1º Cocks and hens	*2º The elephant*
Pitch: Is it high or low?		
Duration: Does it have long or short sounds?		
Intensity: Is it soft or loud?		
Timbre or tone colour: Which are the instruments?		

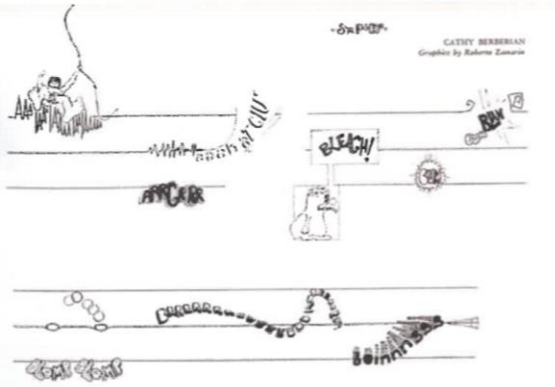
Activity 32.- Imagine that the notation doesn't exist and you have to write sounds. Here you are an example.

Properties	Pitch		Duration		Intensity or volume		Timbre or tone colour	
Drawings	↑	High	———	Long	▬▬	Loud	▯	Recorder
	↓	Low	—	Short	———	Soft	☺	Voice

Work with your partner. Have a look at the videos included in the ***Smalin*** channel in YouTube, http://www.youtube.com/user/smalin , to check how he represents music pieces without scores. Explain it according to

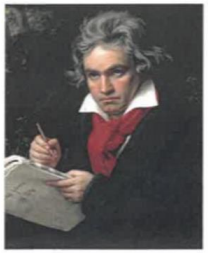
- ✓ The pitches:
- ✓ The durations:
- ✓ The intensity or volume:
- ✓ The timbres or tone colours:

Activity 33.- Look at this excerpt of the piece "Stripsody" by Cathy Berberian, from 1966.



Work in groups. Perform this piece with your voice and record it in ***Audacity***. We will listen to all your versions and we will vote for the one that we prefer.

Activity 34.- Play the melody from the Ode to Joy by Beethoven, changing the sound properties:



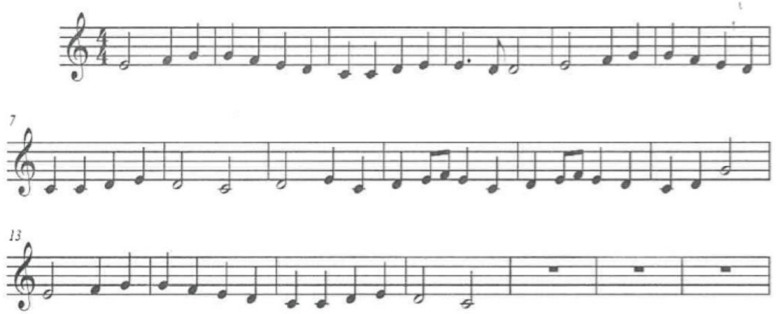
1st) Low and then high

2nd) Soft and then loud

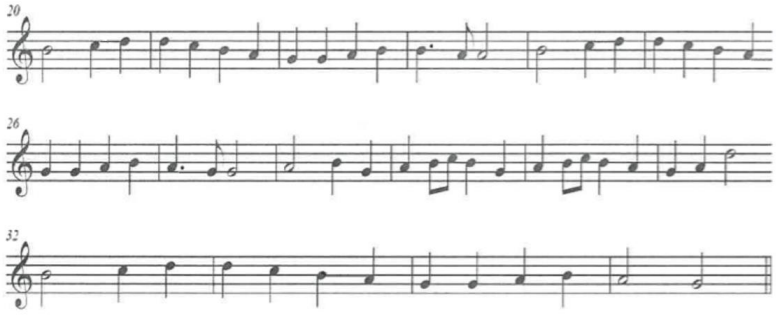
3rd) Long sounds and then short sounds

4th) Recorders and then xylophones

Low melody:



High melody:



Activity 35.- Contest of versions.

Work in pairs. After learning this rhythm, record in **Audacity** your own performance. We will listen to all your versions and we will vote for the one that we like best.

You can play...

- ✓ *Different pitches:*
  The high sounds are written on the line and the low ones under the line. Respecting that, you can choose the notes or sounds that you want.
- ✓ *Different durations:*
  The long sounds are crotchets and the short ones are quavers. Keeping that relationship you can play them as long or short as you want.
- ✓ *Different intensities or volumes:*
  You can play as softly or loudly as you prefer.
- ✓ *Different tone colours or timbres*
  You can play it with your body, objects, your voice, instruments...

Activity 36.- Look for the words that complete the statements in this word search puzzle:

A) The sound is a _ _ _ _ _ _ _ _ _
B) The sound vibrations travel as a _ _ _ _
C) The sound wave travel through the air, solids and the _ _ _ _ _
D) We finally hear in the _ _ _ _ _
E) The sound can't exist in the _ _ _ _ _ _
F) We call a sound that disturb us a _ _ _ _ _
G) The four properties of the sound are:

_ _ _ _ _
_ _ _ _ _ _ _ _
_ _ _ _ _ _
_ _ _ _ _ _ _ _ _

V	A	C	U	U	M	Z	U	T	Y
D	I	R	S	O	H	C	T	I	P
U	T	B	I	L	E	H	J	M	O
R	A	C	R	M	W	D	C	B	N
A	D	W	O	A	A	L	V	R	I
T	F	X	V	C	T	N	K	E	A
I	G	E	S	M	E	I	F	J	R
O	H	Q	D	H	R	H	O	U	B
N	O	I	S	E	N	D	Y	N	I
K	M	U	Z	D	R	A	V	C	E
E	P	X	E	S	G	I	N	O	L
L	Y	T	I	S	N	E	T	N	I

Activity 37.- Fill in the gaps:

		Duration					
					Soft		

Activity 38.- Fill in the summary of the lesson:

1. THE SOUND. PRODUCTION AND TRANSMISSION.

All sounds are _____. Those vibrations propagate as _____ through a **medium** such as _____, liquids and gases. Sounds cannot propagate through the _____ because the waves don't have a medium to pass through.

The _____ **of sound** depends on the medium. The speed of sound _____ air is around 340 meters per second (m/s). It is _____ through water (more than 1,000 m/s) and _____ through solids (more than _____m/s through steel).

Sound and _____ are physically the same. Noise is a sound that we don't like because it is _____ or because it disturbs us. That depends on our _____.

2.PROPERTIES OF SOUND

The four properties or _____ of sound are:
_____**, duration,** _____ **(**also called **tone colour)** and _____.

A) **The pitch** refers to _____. It depends on the _____. The frequency is the number of vibrations per _____. Its unit is the **hertz** (__). A _____ sound has a high **frequency**. A low sound has a _____.
Human beings can't hear frequencies lower than ____ vibrations per second (20 Hz): _____.
We can't hear frequencies _____ than 20,000 vibrations per second (20,000 Hz): **ultrasounds**.
The **tuning fork** is made of _____. When it vibrates it always produces _____ vibrations per second **(440 Hz)**. We call that sound ___ **or A.**

B) **The duration** refers to _____ sounds.

C) **The timbre or**_____ allows the listener to _____ what is producing the sound.

D) **The intensity or**_____refers to _____. It depends on the _____ of the sound wave. We measure the intensity with _____ **(dB)**:

3. THE INTENSITY IN MUSIC:_____.

The intensity in music expresses different _____.
The composers show in the scores the volume or intensity of every passage with _____ or their abbreviations. This is called ***dynamics***:

- ✓ *PP - pianissimo* - _____
- ✓ __ - *piano* - _____
- ✓ *mf* - _____ - intermediate
- ✓ __ - *forte* - _____
- ✓ *ff* - _____ - very loud

- ✓ *Cresc* o _____: gradually getting _____
- ✓ *Dim* o _____: _____getting softer

KEY VOCABULARY

(to) listen	/ˈlɪsn/	duration	/djuˈreɪʃn/
(to) play	/pleɪ/	long	/lɒŋ/
(to) create	/kriˈeɪt/	short	/ʃɔːt/
sound	/saʊnd/	timbre	/ˈtæmbə(r)/
production	/prəˈdʌkʃn/	tone colour	/təʊn/ /ˈkʌlə(r)/
transmission	/trænsˈmɪʃn/	(to) identify	/aɪˈdentɪfaɪ/
vibration	/vaɪˈbreɪʃn/	instrument	/ˈɪnstrəmənt/
wave	/weɪv/	voice	/vɔɪs/
medium	/ˈmiːdiəm/	choir	/ˈkwaɪə(r)/
(to) propagate	/ˈprɒpəgeɪt/	piano	/piˈænəʊ/
vacuum	/ˈvækjuəm/	violin	/ˌvaɪəˈlɪn/
speed	/spiːd/	recorder	/rɪˈkɔːdə(r)/
through	/θruː/	xylophone	/ˈzaɪləfəʊn/
noise	/nɔɪz/		
unpleasant	/ʌnˈpleznt/	intensity	/ɪnˈtensəti/
(to) disturb	/dɪˈstɜːb/	volume	/ˈvɒljuːm/
		dynamics	/daɪˈnæmɪks/
hearing	/ˈhɪərɪŋ/	loud	/laʊd/
silence	/ˈsaɪləns/	intermediate	/ˌɪntəˈmiːdiət/
excerpt	/ˈeksɜːpt/	moderate	/ˈmɒdərət/
composer	/kəmˈpəʊzə(r)/	soft	/sɒft/
notation	/nəʊˈteɪʃn/	gradual	/ˈgrædʒuəl/
(to) perform	/pəˈfɔːm/	change	/tʃeɪndʒ/
performance	/pəˈfɔːməns/	hairpin	/ˈheəpɪn/
(to) record	/ˈrekɔːd/	amplitude	/ˈæmplɪtjuːd/
		(to) measure	/ˈmeʒə(r)/
property	/ˈprɒpəti/	decibel	/ˈdesɪbel/
pitch	/pɪtʃ/	*pianissimo*	/ˌpiəˈnɪsɪməʊ/
high	/haɪ/	*piano*	/piˈænəʊ/
low	/ləʊ/	*mezzo forte*	/ˌmetsəʊˈfɔːteɪ/
melody	/ˈmelədi/	*forte*	/ˈfɔːteɪ/
frequency	/ˈfriːkwənsi/	*fortissimo*	/fɔːˈtɪsɪməʊ/
hertz	/hɜːts/	*crescendo*	/krəˈʃendəʊ/
infrasound	/ˈɪnfrəsaʊnd/	*diminuendo*	/dɪˌmɪnjuˈendəʊ/
ultrasound	/ˈʌltrəsaʊnd/		
tuning fork	/tjuːn ɪŋ/ /fɔːk/		
(to) tune	/tjuːn/		

APPENDIX IV

Suggestion of Reorganized music materials from Unit 1, *Listen, Play, Create – I*

LESSON 1.- WHAT IS SOUND?

- **Activation stage:**

Activity 1.- Work in groups. Pick up one of the instruments below and explain to the rest of the class if you can see or/and feel with your fingers the vibration when you:

- Pluck the strings of a guitar.
- Hit a cymbal.
- Hit a tambourine.
- Play a xylophone.

Activity 2.- What happens when you stop the vibration of the instruments above?

Activity 3.- Where is sound propagating through when...

...you hear while diving?
...you hear your neighbour through the wall?
...you feel and hear the tuning fork when it vibrates against your elbow?
...the Indians in the films lean their ears on the floor to hear the enemies coming?
...you can hear your friend with two plastic glasses joined by a tense string?
...you watch TV?

Activity 8.- We are always hearing something. It is impossible to be in total silence although we think we are. Check it like this:
Be quiet. Close your eyes for a minute and focus on the sounds or noises that you can hear.
List everything that you heard. Compare with the things that your partners heard.

- **Introduction stage, text from part 1:**

Possible instruction to combine all reading comprehension activities together: 'Try answering these questions. If you don't know the answers, read the text to find the information you need:'

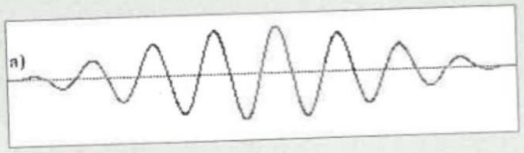
Activity 4.- What is the speed of sound through air?

Activity 5.- What is the medium through which sound propagates the fastest?

Activity 6.- Where is there no sound and why?

1.- THE SOUND. PRODUCTION AND TRANSMISSION.

All sounds are **vibrations**. Those vibrations propagate as **waves** through a **medium** such as solids, liquids and gases. Sounds cannot propagate through the **vacuum** because the waves don't have a medium to pass through.



The **speed of sound** depends on the medium. For example, the speed of sound through air is around 340 meters per second (m/s). It is faster through water (more than 1,000 m/s) and the fastest through solids (more than 5,000 m/s through steel).

Sound and noise are physically the same. Noise is a sound that we don't like because it is unpleasant or because it disturbs us. That depends on our opinion.

Activity 9.- Listen to this excerpt and answer:

Do you think this piece consists of sounds or noises?

Why?

Activity 7.- Classify in noises or sounds according to your opinion:

A dog barking - The waves at the beach - The wind moving the leaves of a tree
A bird singing - An alarm - The school bell.

Add more noises or sounds and compare them with your partner.

Noises	Sounds

Activity 10: To improve the activity we suggest the following instruction: 'Work in pairs. Each of you have to write three sentences, one false and two true, based on the information from the text. Then, read the sentences to each other and try to find the false one.

Don't make the false sentences too evident!'

Activity 10.- Are these statements true or false?

a) Sound is a vibration that propagates as a wave through solids, liquids and gases.
b) The speed of sound through water is around 340 m/s.
c) Noise is a pleasant sound.
d) There are sounds everywhere in the Universe.

- **Complication stage, texts from part 2:**

Possible instruction to combine all reading comprehension activities together: 'Try answering these questions. If you don't know the answers, read the text to find the information you need:'

Activity 12.-What is frequency and what is hertz?

Activity 13.-Has a high-pitched sound a high frequency?

Has a low-pitched sound few hertz?

Activity 16.- Do women have a higher or a lower voice than men? *Why?*

Activity 18. How do we name the sounds higher than 20,000 Hz?

Which animals can hear them?

How do we name the sounds lower than 20 Hz?

Which animals can hear them?

2.- PROPERTIES OF SOUND

The four properties or characteristics of sound are:
pitch, duration, timbre (also called tone colour) and intensity.

A) **The pitch** refers to **high-pitched or low-pitched sounds**. It depends on the **frequency**. The frequency is the number of vibrations per second. Its unit is the hertz (Hz). A high sound has a high frequency, a lot of hertz. A low sound has a low frequency, few hertz.

Human beings can't hear all frequencies. We can't hear frequencies lower than 20 vibrations per second (20 Hz). We name those sounds **infrasounds**. Some animals such as dolphins and whales can hear them. We can't hear frequencies higher than 20,000 vibrations per second (20,000 Hz). We call them **ultrasounds**. Some animals such as dogs and bats can hear them.

The **tuning fork** is made of metal. When it vibrates it always produces 440 vibrations per second (**440 Hz**). We call that sound **la or A.** It is like a compass in music. The instruments can be tuned from that note and it is useful for the choirs, too.

As a general rule, small instruments have high-pitched sounds and big instruments have low-pitched sounds. For example, a violin is higher than a bass because it is smaller.
*(*Remember: Large-Low)*

Women have higher voices than men because their vocal cords are smaller.

Activity 11: instruction adaptation was extracted from the Suggestions for improvement section in the music materials: 'Work with a partner. Your partner closes the book. Read some of the sentences below aloud with the gaps provided. Your partner has to say the correct words to complete the sentence. If he/she gets them wrong, assess him with the correct information from the text'. Examples of sentences with gaps for student to read:

-Women have higher voices because their_____are smaller.

-The_____is the number of vibrations_____.

-Generally, small instruments produce_____ and big instruments produce_____.

-The pitch refers to_____. It depend on the_____.

-Frequencies lower than 20 vibrations are called_____.

-Frequencies higher than 20,000 vibrations are called_____.

-The Unit to measure the vibration per second is called_____.

Activity 11.- Complete the sentences:

The pitch refers to_____. It depends on the _____.

Activity 17. Classify these sounds into low or high and add another example of every kind.

School bell - A door slam - Motor - Siren - Bird - Thunder

Low	High

Activity 14.-Where do you find the low-pitched sound in a keyboard or a xylophone: to your left or to your right?

Which are the high-pitched keys, the short keys or the long keys?

Activity 15.- How many holes do you have to cover to get the lowest pitch with the recorder?

B) The duration refers to **long and short** sounds.

C) The timbre or tone colour allows the listener to identify the instrument, the voice or object that is producing the sound.

If a piano and a violin play the same pitch, with the same volume and the same duration, we differentiate them thanks to their timbre. It depends on the material that vibrates and the specific components of the sound waves.

D) The intensity or volume refers to **loud and soft**. It depends on the **amplitude** of the sound wave.
Don't mix up pitch and intensity: a sound can be high and loud or high and soft, low and loud or low and soft.

We live surrounded by sounds of different volumes. Think of examples in your daily life that are soft or very soft, intermediate, loud and very loud:

- Soft and very soft:
- Intermediate:
- Loud:
- Very loud:

Activity 22.- How can we distinguish two sounds of the same pitch, duration and volume?

We measure the intensity with **decibels (dB)**: These are the decibels of some daily life sounds:

Sound	Decibels	Other examples
Sounds in the countryside	10	
Quiet library	20-30	
Conversation among few people	40	
Conversation among a lot of people	60	
Vacuum cleaner	70	
Train	80	
Traffic	90	
Hand drill	100	
Loud rock concert	110	
Plane engine	120	
Pain begins	130	
Permanent damage	140	

Activity 19.- Write in the right cell these sounds (you can guess or find it in the Internet):

Disco - Phone ringing - Shot - Motorcycle - Light rain
Alarm clock - Leaves moving - Explosion - Television

Activity 20.- Listen and answer: Is the sound of a woodblock shorter or longer than a cymbal?

Activity 21.- Classify the following sounds in the chart: *A whistle, a cat purring, a door slamming, an alarm. Add another four. Share with your partner.*

Low and soft	*Low and loud*	*High and soft*	*High and loud*

3.- THE INTENSITY IN MUSIC: DYNAMICS

The intensity in music expresses different emotions, because the effect of music is different depending on its volume. It can even define styles or types of songs: Heavy metal has to be loud, but a lullaby has to be soft.

The composers show in the scores the volume or intensity of every passage with Italian words or their abbreviations. This is called ***dynamics***:

ABBREVIATION	ITALIAN WORD	MEANING
pp	*pianissimo.*	VERY SOFT
p	*piano*	SOFT
mf	*mezzo forte*	INTERMEDIATE
f	*forte*	LOUD
ff	*fortissimo*	VERY LOUD

Gradual changes of intensity

Sometimes a passage gets gradually softer or gradually louder. There are two ways of expressing it:

ITALIAN WORD AND ABBREVIATION	HAIRPIN	MEANING
Crescendo o *cresc.*		GRADUALLY GETTING LOUDER
Diminuendo o *dim.*		GRADUALLY GETTING SOFTER

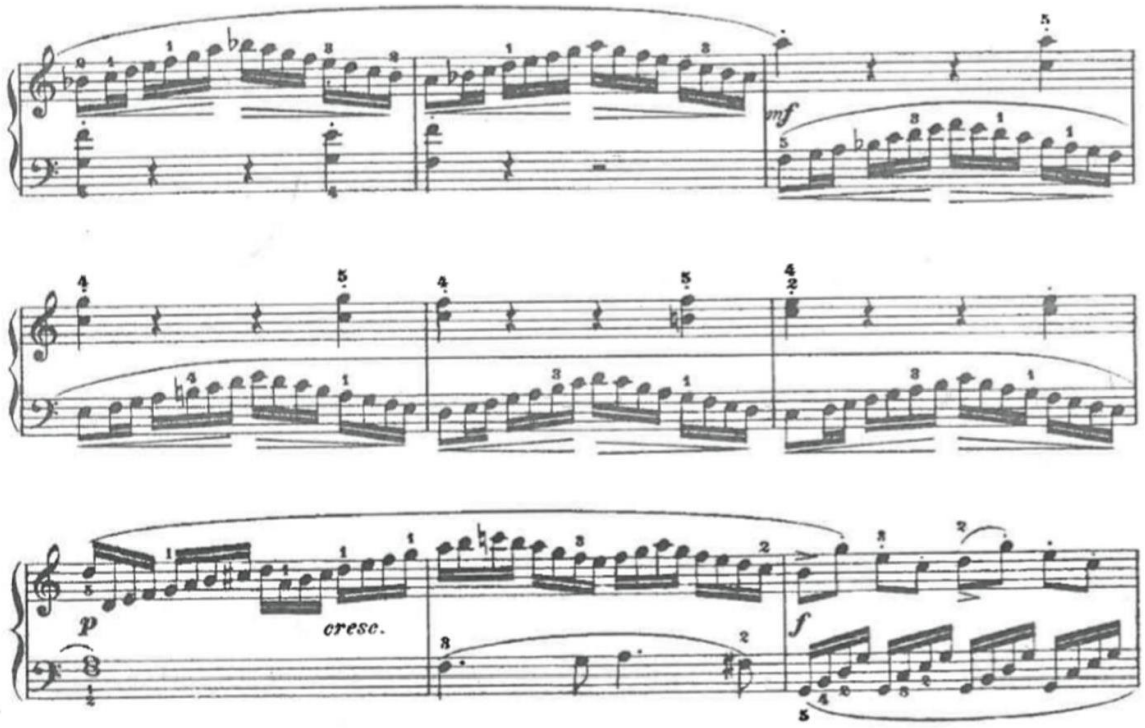
Activity 23: According to the Suggestions for improvement section, this activity could be adapted the following way: 'Work with a partner. Look at the dynamics and think of a sound you associate to each of them. Set you own order, make the corresponding sound and your partner has to guess the correct order of your dynamics'

Activity 23.- Write the dynamics in order, from the softest to the loudest:

mf - ff - f- p -pp

Activity 24.- Which are the two ways of expressing that the intensity gets louder and softer?

Activity 25.-Identify the dynamics and fill in the chart below:



Bar	Dynamics	Meaning
2		
3		
7		
7		
9		

Activity 26.- Listen to the piece "In the hall of the mountain king" , from Peer Gynt by Edvard Grieg. The same passage is repeated several times, but the volume changes. How?

What is the effect that it produces?

Activity 27.- Listen to these two versions of the same song: Mr Sandman, by The Chordettes and by Blind Guardian.
How does the intensity change?

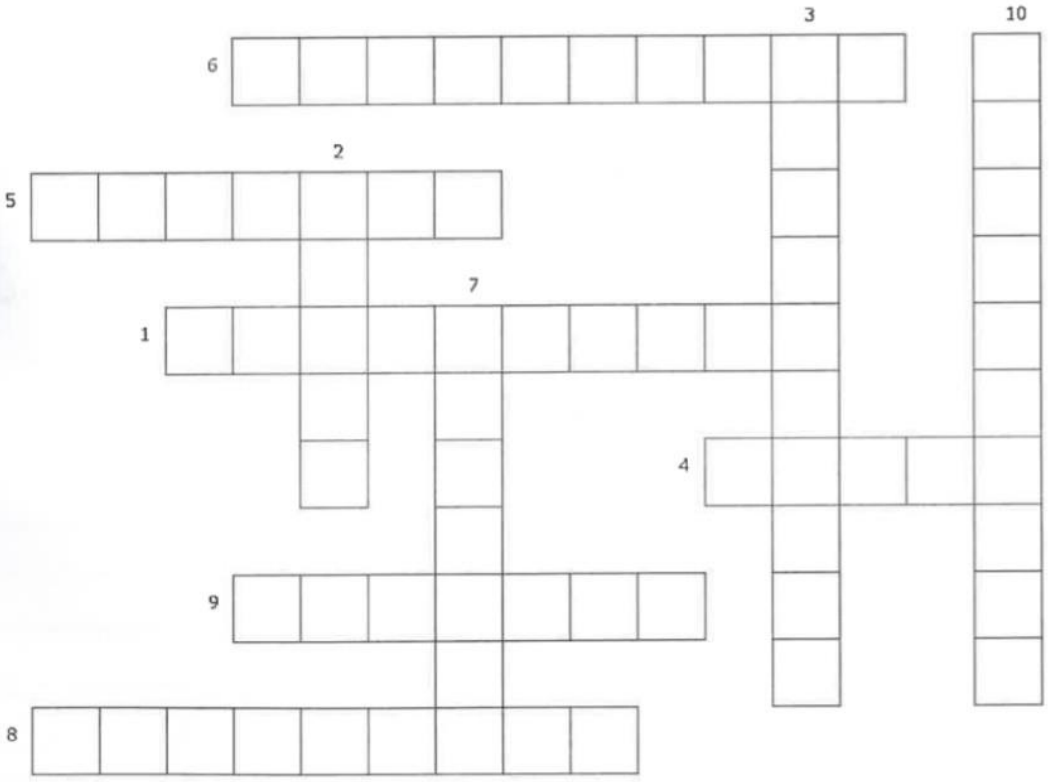
How does the song change because of that?

Activity 28: Based on the Suggestions for improvement section, we propose the following instruction for this activity: 'Work with a partner, you are going to do a crossword. Look at the text you have read earlier. Select ten items of vocabulary. Write the definitions for your words. Design your crossword carefully and pass it to another pair so they solve it. Do the same with their crossword'

Activity 28.- Work with your partner. Solve the crossword:

ACROSS
6. Very loud.
5. Sign to indicate *crescendo* or *diminuendo*.
1. Very soft.
4. Loud.
9. Unit of intensity.
8. Gradually becoming louder.

DOWN
2. Soft.
7. Dynamics are written in this language.
3. Moderate.
10. Gradually becoming softer.



- **Practice section 'Listen and Create'**, also included in the Complication stage, which we recommended to divide visually from the previous text-based activities.

Activity 29.- Work with your partner. Choose between high/low, long/short and loud/soft and tell your partner. He/she has to play it with the object or instrument that he/she prefers.

Example: Play a high, long and loud sound. Then your partner plays a cymbal.

The rest of the class has to say if the sound is right or not.

Activity 30.- Fill in the gaps according to the sound that your teacher or partner makes.

	Pitch		*Duration*		*Intensity or volume*		*Timbre or tone colour*
	High	**Low**	**Long**	**Short**	**Loud**	**Soft**	**What is it?**
1							
2							
3							
4							

Activity 31.- Listen to these musical portraits of animals form "The carnival of the animals" by Camille Saint-Saëns and fill in the gaps.

	1º Cocks and hens	*2º The elephant*
Pitch: Is it high or low?		
Duration: Does it have long or short sounds?		
Intensity: Is it soft or loud?		
Timbre or tone colour: Which are the instruments?		

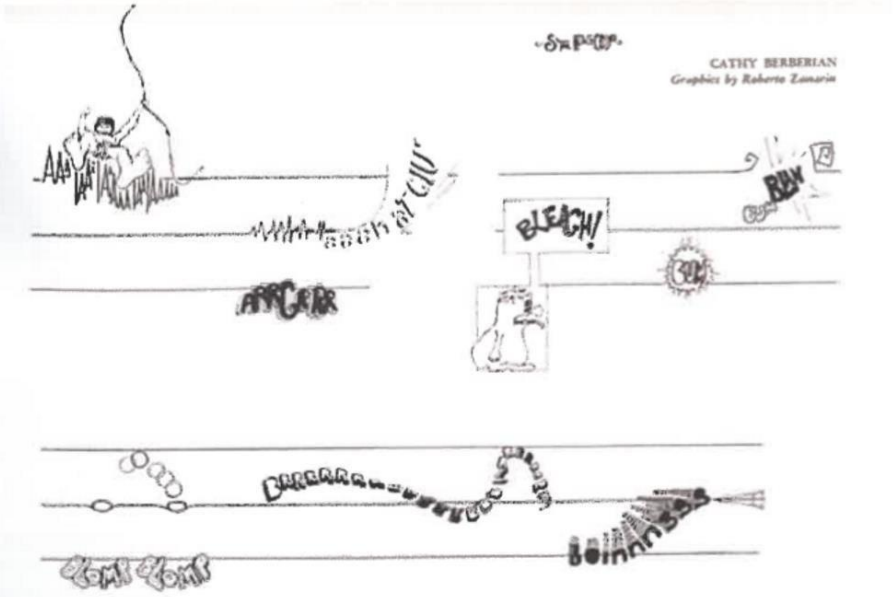
Activity 32.- Imagine that the notation doesn't exist and you have to write sounds. Here you are an example.

Properties	Pitch		Duration		Intensity or volume		Timbre or tone colour	
Drawings	↑	High	———	Long	▬▬	Loud	▯	Recorder
	↓	Low	—	Short	———	Soft	☺	Voice

Work with your partner. Have a look at the videos included in the ***Smalin*** channel in YouTube, http://www.youtube.com/user/smalin , to check how he represents music pieces without scores. Explain it according to

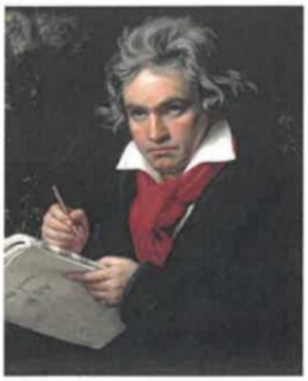
- ✓ The pitches:
- ✓ The durations:
- ✓ The intensity or volume:
- ✓ The timbres or tone colours:

Activity 33.- Look at this excerpt of the piece "Stripsody" by Cathy Berberian, from 1966.



Work in groups. Perform this piece with your voice and record it in ***Audacity***. We will listen to all your versions and we will vote for the one that we prefer.

Activity 34.- Play the melody from the Ode to Joy by Beethoven, changing the sound properties:



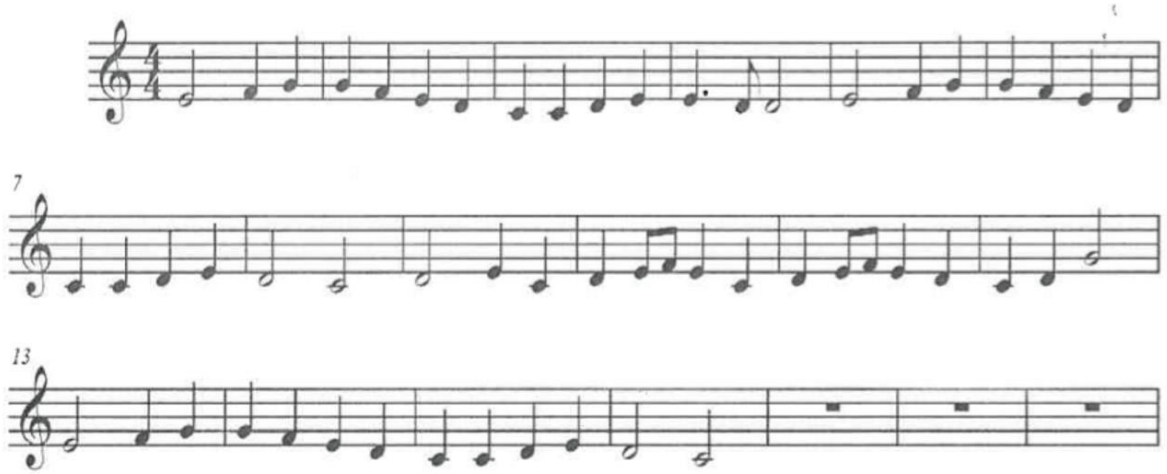
1st) Low and then high

2nd) Soft and then loud

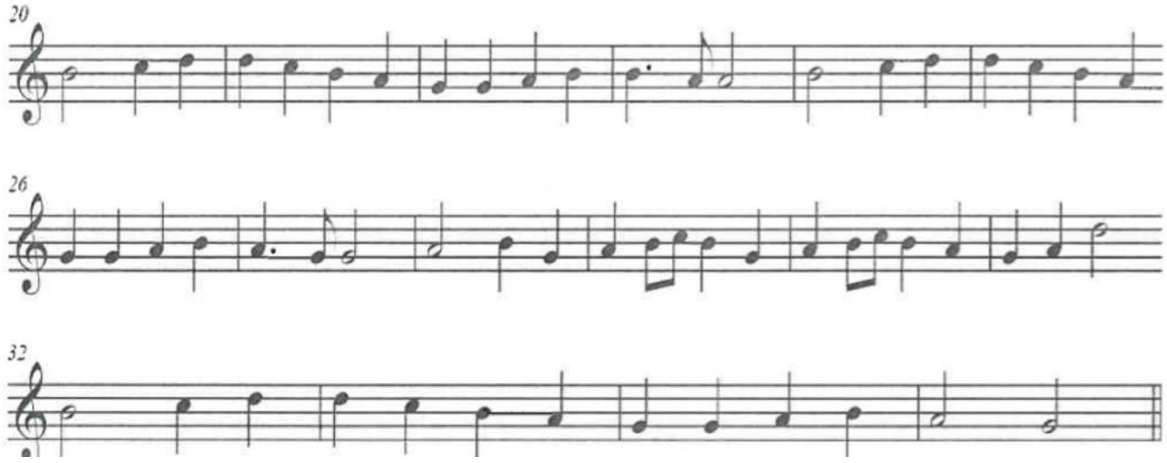
3rd) Long sounds and then short sounds

4th) Recorders and then xylophones

Low melody:



High melody:



- **Synthesis stage**, activities from page 15 and 16.

Activity 36.- Look for the words that complete the statements in this word search puzzle:

A) The sound is a _ _ _ _ _ _ _ _ _
B) The sound vibrations travel as a _ _ _ _
C) The sound wave travel through the air, solids and the _ _ _ _ _
D) We finally hear in the _ _ _ _ _
E) The sound can't exist in the _ _ _ _ _ _
F) We call a sound that disturb us a _ _ _ _ _
G) The four properties of the sound are:
_ _ _ _ _
_ _ _ _ _ _ _ _
_ _ _ _ _ _
_ _ _ _ _ _ _ _ _

V	A	C	U	U	M	Z	U	T	Y
D	I	R	S	O	H	C	T	I	P
U	T	B	I	L	E	H	J	M	O
R	A	C	R	M	W	D	C	B	N
A	D	W	O	A	A	L	V	R	I
T	F	X	V	C	T	N	K	E	A
I	G	E	S	M	E	I	F	J	R
O	H	Q	D	H	R	H	O	U	B
N	O	I	S	E	N	D	Y	N	I
K	M	U	Z	D	R	A	V	C	E
E	P	X	E	S	G	I	N	O	L
L	Y	T	I	S	N	E	T	N	I

Activity 37.- Fill in the gaps:

		Duration					
					Soft		

Activity 38.- Fill in the summary of the lesson:

1. THE SOUND. PRODUCTION AND TRANSMISSION.

All sounds are _____. Those vibrations propagate as _____ through a **medium** such as _____, liquids and gases. Sounds cannot propagate through the _____ because the waves don't have a medium to pass through.

The _____ **of sound** depends on the medium. The speed of sound _____ air is around 340 meters per second (m/s). It is _____ through water (more than 1,000 m/s) and _____ through solids (more than _____m/s through steel).

Sound and _____ are physically the same. Noise is a sound that we don't like because it is _____ or because it disturbs us. That depends on our _____.

2.PROPERTIES OF SOUND

The four properties or _____ of sound are:
_____, **duration,** _____ **(**also called **tone colour)** and _____.

A) **The pitch** refers to _____. It depends on the _____. The frequency is the number of vibrations per _____. Its unit is the **hertz** (__). A _____ sound has a high **frequency**. A low sound has a _____.
Human beings can't hear frequencies lower than ____ vibrations per second (20 Hz): _____.
We can't hear frequencies _____ than 20,000 vibrations per second (20,000 Hz): **ultrasounds**.
The **tuning fork** is made of _____. When it vibrates it always produces _____ vibrations per second (**440 Hz**). We call that sound ___ **or A.**

B) **The duration** refers to _____ sounds.

C) **The timbre or** _____ allows the listener to _____ what is producing the sound.

D) **The intensity or** _____refers to _____. It depends on the _____ of the sound wave. We measure the intensity with _____ **(dB)**:

3. THE INTENSITY IN MUSIC: _____.

The intensity in music expresses different _____.
The composers show in the scores the volume or intensity of every passage with _____ or their abbreviations. This is called ***dynamics***:

- ✓ *PP - pianissimo -* _____
- ✓ __ *- piano -* _____
- ✓ *mf -* _____ - intermediate
- ✓ __ *- forte -* _____
- ✓ *ff -* _____ - very loud

- ✓ *Cresc* o _____: gradually getting _____
- ✓ *Dim* o _____: _____getting softer

- **Assessment stage**, activity from page 15.

Activity 35.- Contest of versions.

Work in pairs. After learning this rhythm, record in **Audacity** your own performance. We will listen to all your versions and we will vote for the one that we like best.

You can play...

- ✓ *Different pitches:*
  The high sounds are written on the line and the low ones under the line. Respecting that, you can choose the notes or sounds that you want.

- ✓ *Different durations:*
  The long sounds are crotchets and the short ones are quavers. Keeping that relationship you can play them as long or short as you want.

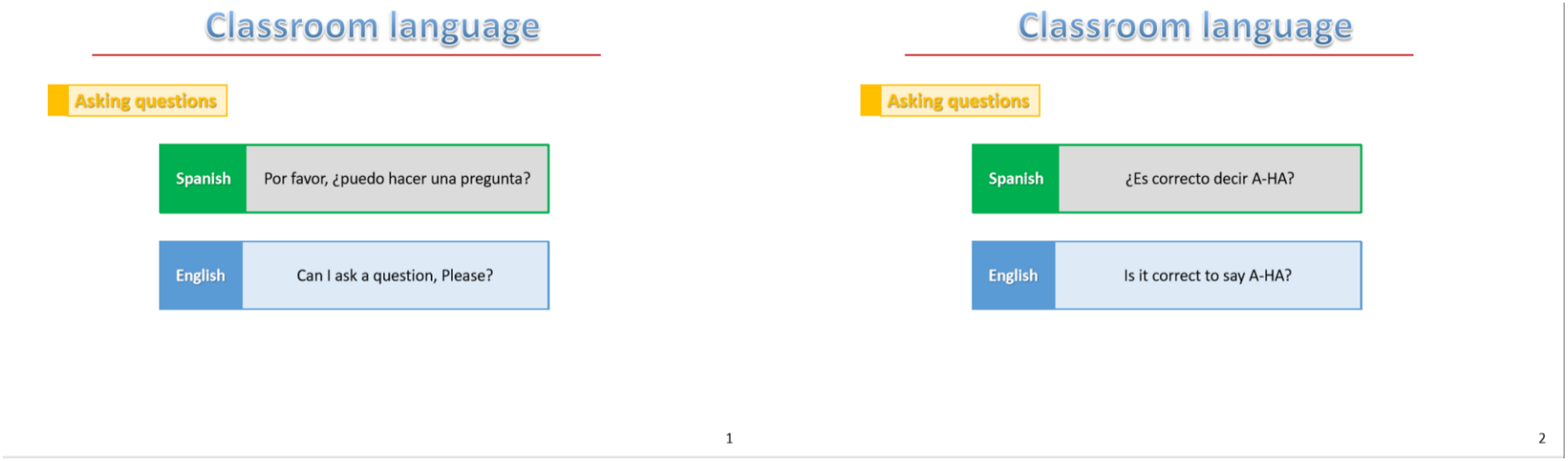
- ✓ *Different intensities or volumes:*
  You can play as softly or loudly as you prefer.

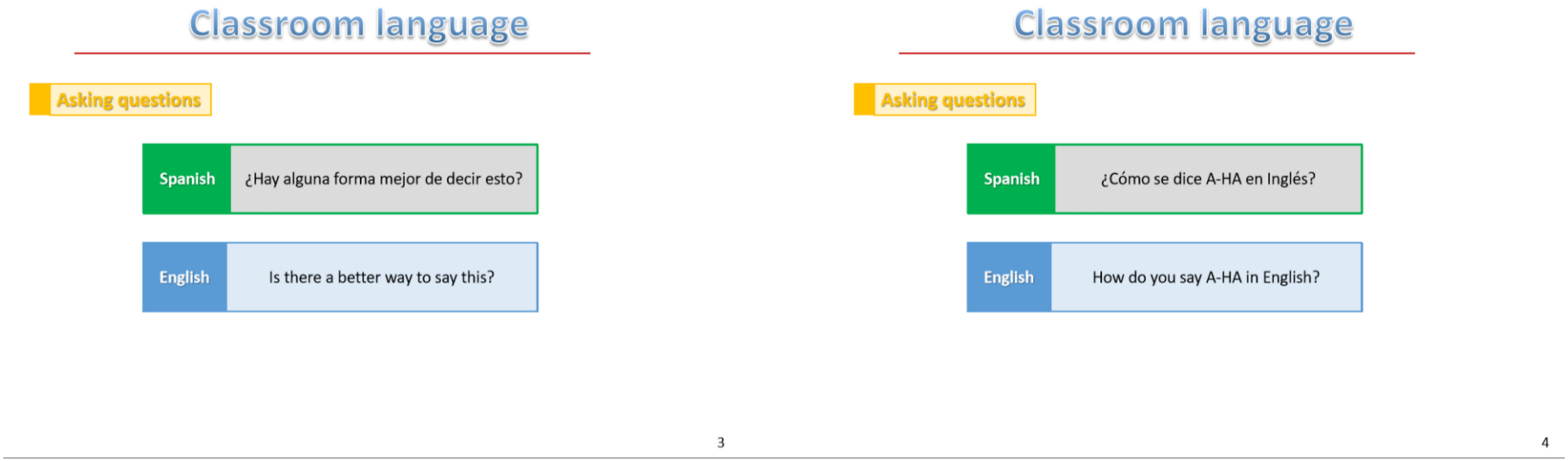
- ✓ *Different tone colours or timbres*
  You can play it with your body, objects, your voice, instruments...

APPENDIX V

Technology materials in order of appearance in the Moodle (Figure 1 in main body of the Dissertation)

Classroom language ppt





Classroom language

Asking questions

Spanish	¿Cuál es la palabra en ingles para A-HA?
English	What is the word for A-HA in English?

5

Classroom language

Asking questions

Spanish	¿Qué significa A-HA?
English	What does A-HA mean?

6

Classroom language

Asking questions

Spanish	¿Cómo se escribe esta palabra?
English	How do you write this word?

7

Classroom language

Asking questions

Spanish	¿Cómo se deletrea esta palabra?
English	How do you spell this word?

8

Classroom language

Asking questions

Spanish	¿Cómo se pronuncia esta palabra?
English	How do you pronounce this word?

9

Classroom language

Asking for repetition and further explanation

Spanish	Lo siento, no lo entiendo. Por favor ¿Puedes explicarlo otra vez?
English	I'm sorry, I don't understand. Can you explain it again, please?

10

Classroom language

Asking for repetition and further explanation

Spanish	Lo siento, no me he enterado de lo que has dicho. ¿Quieres que nosotros A-HA?
English	I'm sorry, I missed what you said. Do you want us to A-HA?

11

Classroom language

Asking for repetition and further explanation

Spanish	Me temo que no te sigo. ¿Quieres decir A-HA?
English	I'm afraid I don't follow you. Do you mean A-HA?

12

Classroom language

Asking for repetition and further explanation

Spanish	Los siento, por favor ¿podrías decirlo otra vez?
English	I'm sorry, could you say that again, please?

13

Classroom language

Asking for repetition and further explanation

Spanish	Lo siento, no entendí las instrucciones. Por favor ¿puedes repetirlas?
English	I'm sorry, I didn´t understand the instructions. Can you repeat them, please?

14

Classroom language

Working in pairs and comparing answers

Spanish	¿Cuál fue tu respuesta al número 6?
English	What was your answer for number 6?

15

Classroom language

Working in pairs and comparing answers

Spanish	¿Qué pusiste en la pregunta número 7?
English	What did you put for question number 7?

16

Classroom language

Working in pairs and comparing answers

Spanish	¿Qué obtuviste? Yo tengo un 6F
English	What did you get? I have got 6F

17

Classroom language

Working in pairs and comparing answers

Spanish	¿Qué respuesta elegiste?
English	What answer did you choose?

18

Classroom language

Working in pairs and comparing answers

Spanish	¿Tienes la misma respuesta que yo?
English	Do you have the same answer as me?

19

Classroom language

Working in pairs and comparing answers

Spanish	¿Cuál piensas que es la respuesta?
English	What do you think the answer is?

20

Classroom objects ppt

Classroom objects

Classroom objects

Naming classroom objects

- If you turn the page over, you will see a list of objects you can usually find in your classroom.
- What do you call those objects? Work in pairs and with the clues given to you in this Power Point presentation and find every object's name.

Classroom objects

Naming classroom objects

Match every object with his name:

- Pocket calculator
- Hole puncher
- Stapler

1. 

Hole puncher

2. 

Stapler staples

3. 

Pocket calculator

Classroom objects

Naming classroom objects

Match every object with his name:

- Scissors
- Ruler
- Sellotape

4. 

Ruler

5. 

Scissors

6. 

Sellotape

Classroom objects

Naming classroom objects

Match every object with his name:

- Notebook
- Pencil sharpener
- Paper clip

7. 

Paper clip

8. 

Notebook

9. 

Pencil sharpener

Classroom objects

Naming classroom objects

Match every object with his name:

- Ring binder
- Paper file
- Plastic files

10. 

Ring binder

11. 

Plastic files

12. 

Paper file

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Pen ✘ Teacher's desk ✘ Data projector

13. 

Teacher's desk

14. 

Data projector

15. 

Pen

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Eraser ✘ Highlighter pen ✘ Correction fluid

16. 

Rubber (UK) Eraser (US)

17. 

Correction fluid

18. 

Highlighter pen

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Compass ✘ Pencil ✘ Agenda book

19. 

Pencil

20. 

Compass

21. 

Agenda book

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Board pen ✘ Chalk ✘ Blackboard eraser

22. 

Chalk

23. 

Blackboard eraser (US)

24. 

Board pen

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Scrap paper ✘ Glue stick ✘ Squared paper

25. 

Squared paper

26. 

Scrap paper

27. 

Glue stick

Classroom objects

Naming classroom objects

Match every object with his name:

✘ Screen ✘ Classroom cupboard ✘ Pencil case

28. 

Pencil case

29. 

Classroom cupboard

30. 

Screen

Classroom objects

Describing How things work

- Work in pairs.
- Point to one of the classroom objects and ask your partner what it is for.
- Then ask your partner how it works

What's this for?

It's for…+ -ing

It's used for … + -ing

It's a device/instrument for … + -ing

Oh, I see. **What do you call it?**

It's a …

Classroom objects

Naming Classroom objects

If you turn the page over, you will see a list of objects you can usually find in your classroom.

What do you call those objects? Work in pairs and with the clues given to you in the Power Point presentation find every object's name.

Describing how things work

Work in pairs. Point to one of the classroom objects and ask your partner what it is for. Then ask your partner how it works.

- **What's** this for?
  - It's for … + -ing
  - It's used for … + -ing
  - It's a device/instrument for …+ ing
- Oh, I see. **What do you call it?**
  It's a…

Crossword: Classroom objects

Instructions:

You have half of a crossword. Taking turns with your partner you must find the missing words. You have to make questions similar to:

- "What's 1 down?"
- "What's 5 across?"

Your partner will explain the word. When you know the word, you must say:

- "Oh, I see!"

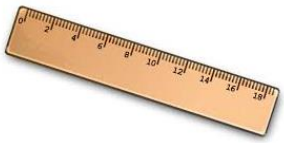
Do not say the word out loud. If you cannot understand what the word is, say to your partner:

- "How do you spell it?"

1. _____ _____

2. _____ _____

3. _____ _____



4. _____ _____

5. _____ _____

6. _____ _____

7. _____ _____

8. _____ _____

9. _____ _____

10. _____ _____

11. _____ _____

12. _____ _____

13. _____ _____

14. _____ _____

15. _____ _____

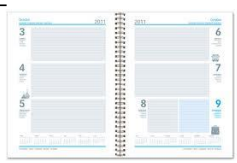
16. _____ _____

17. _____ _____

18. _____ _____

19. _____ _____

20. _____ _____



21. _____ _____

22. _____ _____

23. _____ _____

24. _____ _____

25. _____

26. _____

27. _____

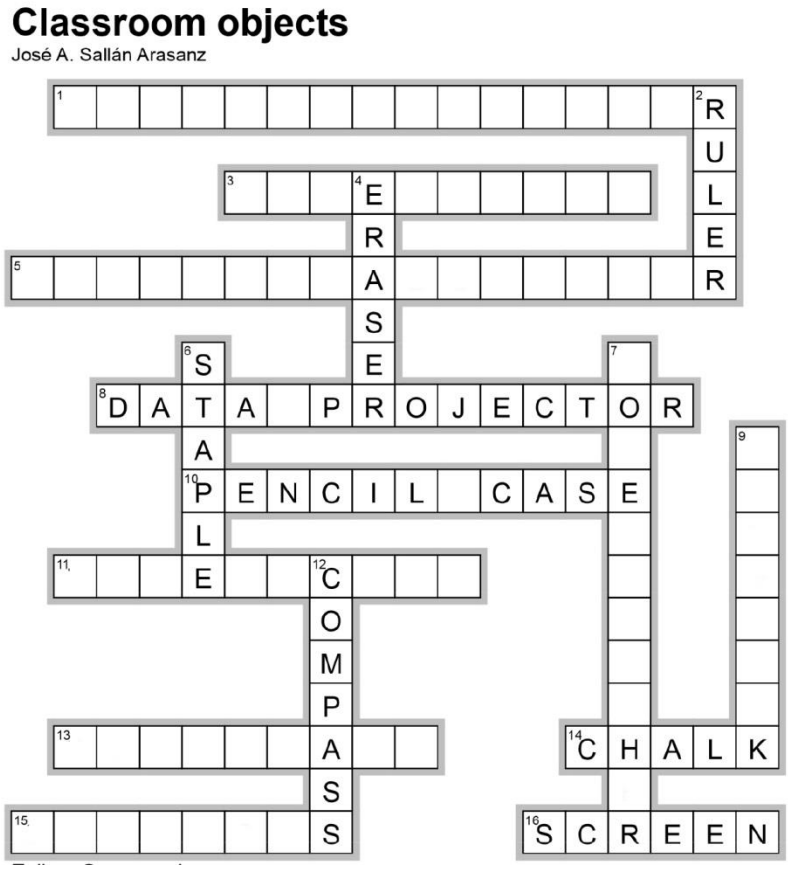
28. _____

29. _____

30. _____

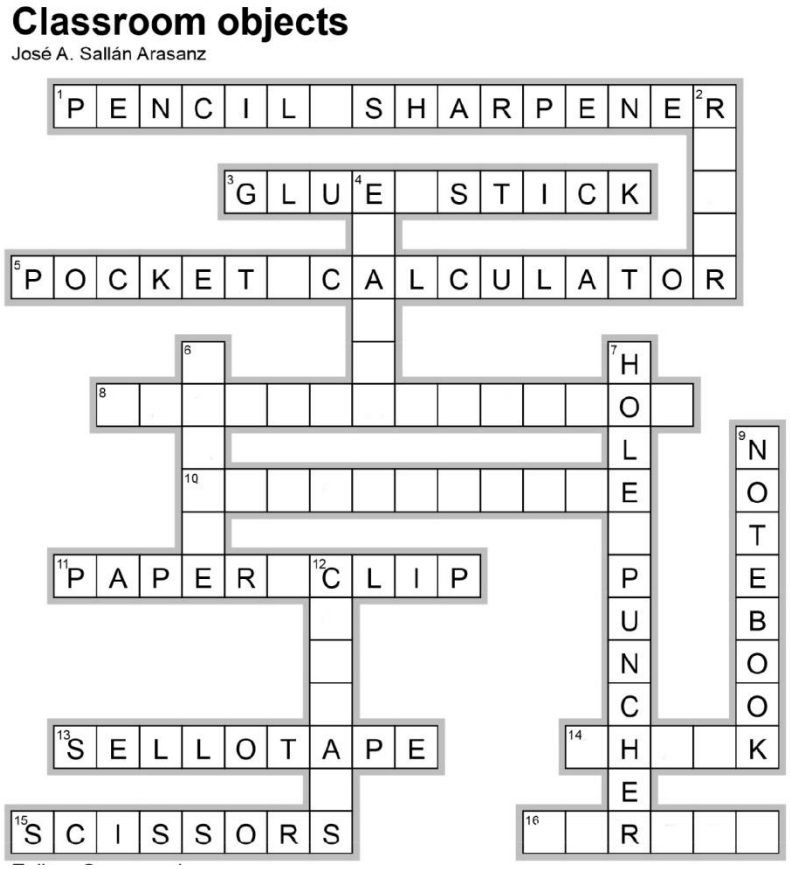
COMUNICATIVE CROSSWORD: CLASSROOM OBJECTS

Student A



COMUNICATIVE CORSSWORD: CLASSROOM OBJECTS

Studendt B



CLASSROOM OBJECTS AND DEFINITIONS

1.-HOLE PUNCHER

It is used to make a hole in your paper.

It is an object for making a hole in a paper.

2.-STAPLER

The documents are held together by this object.

It is used to staple multiple sheets.

You can staple multiple sheets using this object.

3.-POCKET CALCULATOR

It is an instrument for do math.

It is a device to do math operations.

It is used for doing mathematical operations.

4.-RULER

It is an object for measuring small objects.

It is used for guiding your pen or pencil on your notebook.

5.- SCISSORS (pair of scissors)

It is an object used for cutting soft materials

You can use this device for cutting paper, canvas (or fabric) or another soft materials.

6.- SELLOTAPE

It is used to hold a paper with another one.

It is a tape coated with glue to stick a piece of paper to another piece of paper.

7.-PAPER CLIP

It is a small object to hold some papers together.

It is a small iron device to hold multiple sheets.

8.-NOTEBOOK

A notebook is used for writing in an orderly way.

It is for keeping some papers together.

9.-SHARPENER

It is an object to sharpen a pencil.

It is for sharpening a pencil.

10.-RING BINDER

You can keep all your papers together in this object.

It is used for keeping your papers together.

11.-PLASTIC FILES

It is a transparent case for keeping your papers in an orderly way.

It is used for keeping your papers(or a dossier) in the same place.

12.-PAPER FILE

It is a carton case for keeping your papers together.

It is a cardboard folder for keeping your papers together.

13.- TEACHER´S DESK

It is a table in the classroom for the teacher.

It is a table used for the teacher in the classroom.

14.- DATA PROJECTOR.

It is an expensive device for projecting films and slides on the screen.

It is an electronic device used for projecting films on the board.

15.-PEN

It is used for writing with ink on the paper.

It is a simple object for writing with ink on the paper.

16.-ERASER

It is an instrument for erasing what you have written with a pencil.

It is a small object used for erasing.

17.- CORRECTION FLUID

It is a white liquid used for covering a text or a drawing part if you made a mistake.

If you are writing with a pen and you make a mistake you can correct it using a correction fluid.

18.-HIGHLIGHTER PEN

It is a writing instrument used for highlighting a part of a phrase.

It is used for highlighting a part of a phrase.

19.-PENCIL

It is a writing instrument made of wood and graphite.

It is an object used for writing that you can erase easily.

20.-COMPASS

It is a writing instrument used for drawing circles.

It is for drawing circles easily.

21.-AGENDA BOOK

It is a notebook used for keeping a list of things to do, appointments, homework, etc.

It is for keeping your appointments in an orderly way.

22.-CHALK

It is a traditional writing instrument used for drawing on the blackboard.

If you write on the blackboard with this object you can erase it using a blackboard eraser.

23.-BLACKBOARD ERASER

It is an object used for erasing easily on the blackboard.

24.-BOARD PEN

It is a object used for writing on the whiteboard.

25.-SQUARED PAPER

It is a kind of paper made with horizontal and vertical lines forming squares.

26.-SCRAP PAPER

Loose sheets of paper, often used for writing notes on.

27.-GLUE STICK

It is a tube filled with solid glue to be placed on the paper or to stick things together.

28.-PENCIL CASE

It is a small bag often used at school for holding pens, pencils,etc

29.-CLASSROOM CUPBOARD

It is used for storing classroom objects

30.- SCREEN

It is used for projecting films or slides on it

VOCABULARY KEY WORDS LIST

Vocabulary – Key Words

Word	Meaning

SONG ‘WORD DON’T COME EASY’ LYRICS ACTIVITY

Words
F. R. David

Words don't …… to me
How can …… a way to make you see ……. you
Words ……. come easy
Words don't come easy to me
This is ……. for me to say I ……. you
…… don't come easy

Well, I'm just a …….. man
…….are so far …… friend
But my words are ……. wrong
Girl, I …….my heart to you and
Hope that you ……it's true 'cause

Words don't come easy to me
How can I find a way …….. I love you
Words don't…… easy

This …… a simple song
That I've made for you ……
There's no ……. meaning you know when I
When I say I love you ……..
Please believe I really do 'cause

Words ……. come easy to me
How can I find a way …….. I love you
Words don't ……..easy
It isn't ……..words don't come easy

Words …….. come easy to me
How can I find a way ……. I love you
Words don't ……easy
……..come easy to me
This is the ……. for me to say I …… you
Words don't ……easy

Words …… easy
Autores de la canción: Tommy Boyce / Bobby Hart

TECHNIC REPORT

DESCRIPTIÓN:

Theoretical document to guide the technical analysis of objects.
It is accompanied by the example document on the technical analysis of aclothes peg discussed in class.

DEVELOPMENT

Technical analyis is a procedure used in technology which you carry out to study an object in different aspects. Thus, we can divide a technological analysis in paragraphs that appear below

1. **Anatomical analysis**
   a. Is it a simple or compound object? Do many pieces make up the object?
   b. Is it small or , on the contrary , is it large?
   c. Why does it have that shape and dimensions?
   d. Why does it have that color?

2. **Functional analysis**
   a. What is the main function of the object?
   b. What secondary applications does it offer?
   c. How do you handle the object?
   d. How is it controlled?
   e. What protections and security measures are incorporated?
   f. Within what limits can it work?
   g. What type of energy does it use?

3. **Tecnical analysis.**
   a. What materials is it made of? Are they the most appropriate? Why have these materials been used and not others?
   b. What parts make up the object? How are they placed relative to each other?
   c. What technologies are involved in its elaboration?
   d. Has it been built by hand or with machines? What techniques and tools have been used in its manufacture?
   e. Does it meet rules and market standards?

4. **Economic Analysis**
   a. What is the price of the object?
   b. Is this price appropriate when you compare it with other objects that perform the same function?
   c. Is it recyclable? What energy does it use? How are they eliminated?

5. **Sociological analysis**
   a. What problem does the object solve? Is it a necessary object?

b. Who uses it?
c. Did another object solve the same problem before?

6. Esthetic analysis

a. Is its size the right one?
b. What sensations does its appearance cause?
c. Where is it going to be placed?
d. Have the aesthetics been taken into account when designing it?

STUDENT ACTIVITY:.

1. Choose a daily object to do a complete technical analysis

2. You must carry out a report. This report mustn´t have more than four sheets.

3. Your report will include.

a. Personal identification.

b. One or two pictures of the object.

c. A sketch of the object with general measures.

d. A detailed technical analysis of the object following the detailed instruccions we saw before.

e. You can elaborate your report by hand and submit your report in PDF format throught the moodle digital platform.

4. A session will be devoted to show the works in public through projection in the classroom and defense of the student. The exercises will be graded and the most suitable ones will be selected and incorporated to the classroom consultation material.

5. You will dispose two classroom sesions for elaborating it and finally you will complet it at home if you need more time.

Deadline: October 15, 2017.